

3.0 ENVIRONMENTAL RESOURCES, IMPACTS, AND MITIGATION

This chapter describes the socioeconomic and natural resources in the Study Area and identifies the probable beneficial and adverse effects that the No-Action Alternative and build alternatives may have on those resources. Analysis includes both direct and indirect impacts, defined as follows:

Direct impacts are caused by the action and occur at the same time and place (Title 40, Code of Federal Regulations, 1508.8).

Indirect impacts “are caused by an action and are later in time or further removed in distance but are still reasonably foreseeable” (Title 40, Code of Federal Regulations, 1508.8). They may include growth-inducing effects related to changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems. Indirect impacts associated with highway improvements are those that affect the natural or built environment beyond the immediate “footprint” of the highway improvements.

Minimization and mitigation measures are identified for each resource in its respective section.

3.1 LAND USE

This section describes the existing and future land use and zoning conditions for the Study Area. The Study Area is approximately 18,000 acres of land in Washoe County, Nevada, and includes portions of unincorporated Washoe County and the Cities of Sparks and Reno. It is shown in Figure 3-1. In addition, this section describes BLM’s grazing and mining and mineral land uses identified within the Study area.

3.1.1 Methods

The Study team collected information to describe existing land uses and zoning and the future land use planning within the Study Area. This information was gathered from plans and associated documents from the local agencies responsible for land use planning and the review of aerial photography. In addition, discussions were held with planners and officials associated with the municipalities through phone conversations, a formal scoping process, and meetings of the Technical Advisory Committee (TAC). There were also numerous site visits throughout the development of the Draft EIS.

Evaluating direct land use impacts involved assessing the alternatives’ compatibility with existing land use comprehensive plans and zoning. Indirect land use impacts, including induced growth effects, were evaluated through discussions with local planning staff. Local planners provided input on the potential for induced growth from the build alternatives based on future land use plans and potential changes in access.

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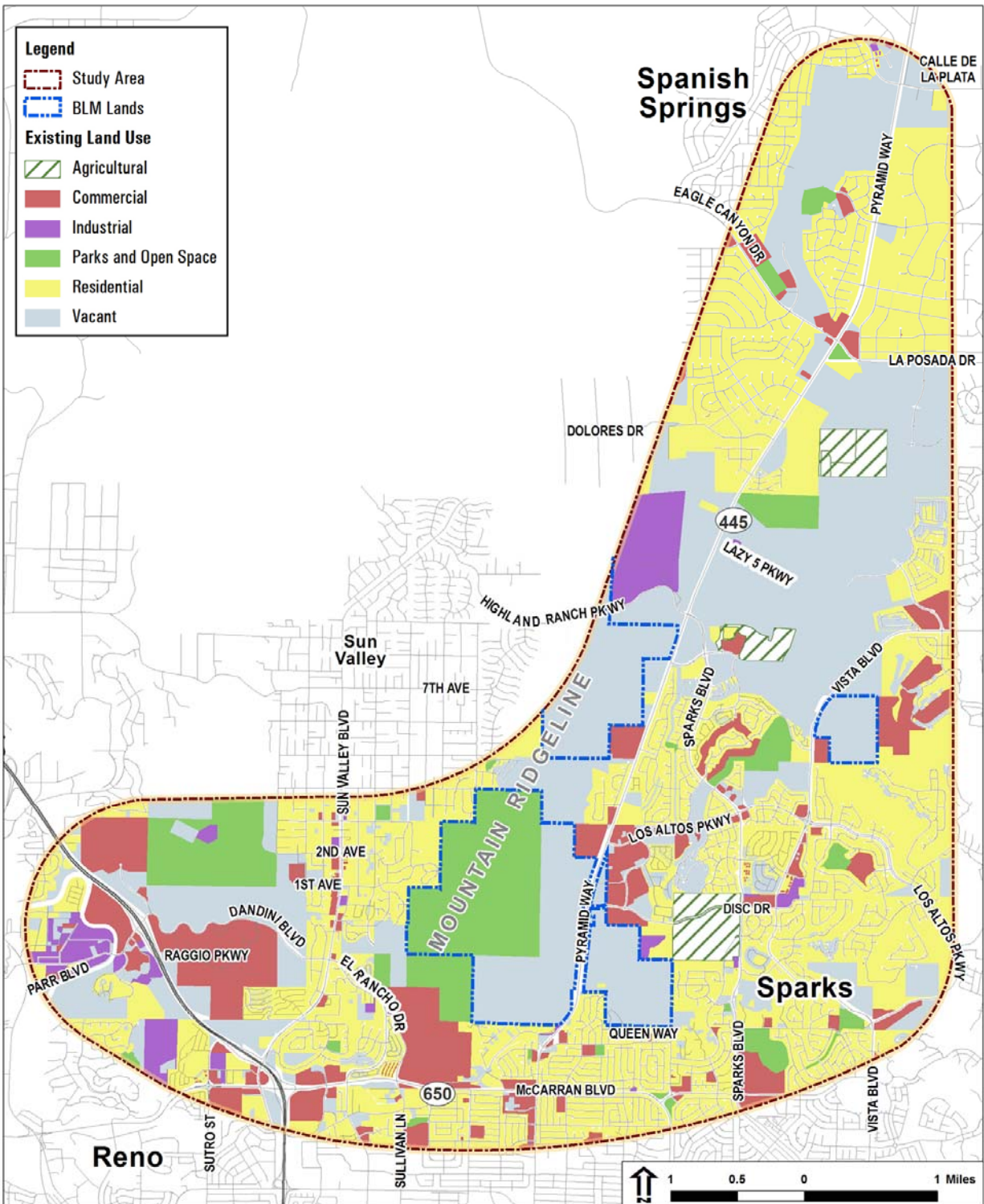


Figure 3-1. Existing Land Use



The BLM land records databases (LR2000 and Rangeland Administration System) were reviewed to identify and locate active and closed mining claims, and grazing allotments and permits in the study area. BLM resource specialists were contacted, as necessary, to clarify the database information.

3.1.2 Existing Conditions

3.1.2.1 Local and Regional Planning Efforts

Land use planning in the Study Area is undertaken by the Cities of Reno and Sparks and by Washoe County. In addition, the RTC and the Truckee Meadows Regional Planning Agency (TMRPA) are responsible for transportation and regional land use planning, respectively. The U.S. Bureau of Land Management (BLM) manages approximately 1,882 acres of land in the Study Area.

Washoe County has jurisdiction over unincorporated lands in the Study Area and coordinates planning efforts with the municipalities. This is most important for areas designated in the *Truckee Meadows Regional Plan* (TMRPA, 2007) as being within the sphere of influence (SOI) for the municipalities. Under Nevada state statute NRS 278.02788, this designation allows municipalities to plan for land use issues in these areas even though they are outside the municipal boundaries. As a result of continued population growth in the region, municipalities are rapidly expanding development into their SOI; growth is evident in unincorporated communities, such as Spanish Springs and Sun Valley.

The planning departments of the various jurisdictions are well-organized and have accepted a collaborative approach that supports a regional planning focus. Each planning body has a recently adopted master plan and regularly updates planning documents. The following sections provide an overview of land use planning documents of local jurisdictions in the Study Area.

The Great City Plan (2007)

The City of Reno master plan is a compilation of various planning efforts, such as Citywide Plans (including areas within the SOI), Center and Corridor Plans, and Neighborhood Plans. Each individual plan is updated separately as needed.

City of Reno Policy Plan (July 16, 2008)

This plan offers City of Reno policies, such as working to ensure that the road network serves present and future demand, promoting protection and conservation of open space and environmental resources, and supporting multimodal transportation policies that minimize disruption of existing neighborhoods and community resources.

1 Population Plan (October 22, 2008)

2 Analysis of past growth trends, potential constraining factors, and a population forecast,
3 which is required to be consistent with the *Washoe County Consensus Forecast*.

4 Conservation Plan (October 22, 2008)

5 Discussion of community desires for protection of cultural resources; prevention of
6 diminished air quality; promotion of compact land development; recognition of geologic
7 hazards in development; and protection of wetlands, drainageways, rivers, soils, and
8 important geologic features.

9 Land Use Plan (August 18, 2010)

10 Describes general land uses throughout Reno, including the Dandini Regional Center in
11 the Study Area.

12 Public Services and Facilities Plan (September 23, 2009)

13 Contains discussions on public resources, including water, wastewater, flood
14 management, mobility, police and fire protection, parks and recreation, public works,
15 and schools.

16 Open Space and Greenways Plan (March 7, 2007)

17 Overview of existing natural resources in the city limits, the system of protected lands,
18 and methods to preserve and enhance the public's understanding and enjoyment of
19 them.

20 The Dandini Regional Center Plan (September 22, 2010)

21 This is a development plan for the 1,000-acre Mixed Use/Dandini Regional Center
22 Zoning Overlay District (MU/DRC). It encourages increased residential, retail, and
23 commercial development at a generally higher density than surrounding areas;
24 recommends multimodal transportation options as a key component to design;
25 encourages a broad mix of uses and a reflection of the natural identity in the landscape;
26 and recognizes RTCs commitment to construct the Outer Ring Road/US 395 Connector,
27 which would likely bisect the Study Area.

28 The Sparks Plan (2002)

29 The City of Sparks master plan is currently being updated, and is expected to be
30 completed in 2013. It includes policies designed to conserve natural resources and reflect
31 community desires related to land uses and transportation. The plan serves as the
32 development goals for the community, a policy guide and planning basis for land use
33 planning, and a source of data and information on land use. It is divided into three
34 sections—Growth Management and Land Use, Public Facilities and Services, and
35 Conservation.



The West Pyramid Area Plan (May 12, 2008)

This plan lays the framework for future growth and development of the six-square-mile area along Pyramid Highway north of Wedekind Road. It outlines goals and policies that balance economic and physical growth by effectively utilizing land and preserving natural resources and describes a predominantly residential development at a broad variety of densities.

Washoe County Comprehensive Plan (September 9, 2010)

The Washoe County comprehensive plan is made up of countywide elements and specific area plans. The Planning Areas that lie within the Study Area include Spanish Springs and Sun Valley. The plan determines the most desirable location for types of development. Its policies are designed to conserve natural resources, reflect community desires related to land uses and transportation, and set standards to guide provision of public services and facilities.

Land Use and Transportation Element (September 15, 2011)

This plan sets goals, policies, and action items to shape the county through land uses and transportation infrastructure, while providing for future population and employment growth. The plan expresses a community desire for planned, sustainable, compatible development and multimodal transportation options. It recognizes the need for capacity improvements along the length of Pyramid Highway and an outer ring road between US 395 and Sparks Boulevard.

Conservation Element (September 9, 2010)

Outlines policies and provides guidelines for protecting the county's cultural, scenic, land, air and water resources as growth and development occur at a rapid pace.

The Spanish Springs Area Plan (September 9, 2010)

Described as a response "to a citizen-based desire to identify, implement, and preserve the community character that has evolved in the Spanish Springs Valley over time." Goals and policies generally revolve around preservation of a dense urbanized core following Pyramid Highway that tapers to a rural setting on the outskirts of the valley. Goals include a safe, efficient, multimodal transportation system providing connections to commercial, employment, and public spaces including a planned regional trail system that connects major developments. The plan also promotes protection of open space and natural resources. The plan advocates for the conversion of Pyramid Highway to a limited access highway and for regional connections that provide alternates to Pyramid Highway.

The Sun Valley Area Plan (September 9, 2010)

Described as a response "to a citizen-based desire to identify, and enhance the community character of Sun Valley and to successfully manage the social, economic and environmental health and sustainability of the community." Goals and policies are

based around a preservation of the community character; protection of open spaces and recreation opportunities; and provision of a safe, efficient, multimodal transportation system. Community character is generally described as suburban type development with an urban core following Sun Valley Boulevard from Rampion Way to 7th Avenue.

Truckee Meadows Regional Plan (June 2011)

This regional plan is produced by the TMRPA through the cooperative effort of the Cities of Reno and Sparks, Washoe County, the RTC, and the citizens of Truckee Meadows Region. It sets a framework for local and regional policies and services based on the principle to create a well-planned region that manages impacts of growth and addresses regional development, including the regional form, infrastructure provision, open space and greenways; management of unique resources, including wildlife habitat, air and water quality, and water quantity; and provision of public services including roads, utilities, water and sewer services.

Carson City Field Office Consolidated Resource Management Plan (May 2001), Final Southern Washoe County Urban Interface Plan Amendment (January 2001)

These two plans guide management of two units of BLM lands located in the Study Area and large expanses of BLM lands that extend to the northwest and the east out of the urbanized area. The management prescriptions for the two Study Area parcels, as well as nearly all other BLM lands throughout Washoe County, call for retention in public ownership. Lands are managed to protect open space, visual, recreation, watershed, and wildlife resources with priority over other uses. Off-highway vehicles are only permitted on existing roads and trails.

3.1.2.2 Land Use and Zoning

Study Area land uses are generally based on the land use plans described above, and future land use will continue to follow these guidelines. The Study Area is most urban at its southern end with development radiating northward in fingers that transition from suburban to rural as they head north along the valleys that surround Pyramid Highway, US 395, and Clear Acre Lane. Between these fingers are undeveloped mountainous areas predominantly made up of lands protected from development by ownership or geological constraints.

The Study Area is approximately 18,000 acres, containing a broad mix of land uses from large expanses of protected, undeveloped areas to high-density, mixed-use, urban areas, as illustrated in Figure 3-1.

Following is a description of existing land uses found in the Study Area by political jurisdiction.



City of Reno

Approximately 2,342 acres in the southwest corner of the Study Area fall within Reno's boundaries. This land is currently predominately undeveloped and consists of heavily sloped, sparsely vegetated terrain. US 395 bisects the western edge of this land, and the Parr Boulevard/Dandini Boulevard and Clear Acre Lane interchanges provide access for the area to US 395.

Approximately 40 percent (920 acres) of the Study Area in Reno comprises land zoned Mixed-Use/Dandini Regional Center (MU/DRC) associated with the Dandini Regional Center. This property is just beginning to develop at this time. Currently, Dandini Boulevard provides access to the Desert Research Institute (DRI) and the Truckee Meadows Community College (TMCC) Dandini Campus, which are part of this development. The MU/DRC zoning allows a broad mix of uses to occur at relatively high densities in a multimodal/pedestrian oriented setting.

Zoning of the Study Area in Reno is mostly residential, followed by commercial, mixed-use, and industrial. Field visits and review of aerial photography show that these lands are approximately 85 percent developed and generally follow their respective zoning definitions.

City of Sparks

Approximately 8,470 acres located in the southeast of the Study Area along the east side of Pyramid Way lie within the Sparks city limits. The Study Area within Sparks is an extremely broad mix of uses ranging from agricultural lands to suburban style residential to big box commercial developments. It is currently predominately residential with large expanses of vacant land. Commercial uses are interspersed throughout but concentrated along Pyramid Highway. Prior to the recent economic downturn vacant lands were developing into residential and commercial uses at a rapid rate. Many of these developments were put on hold or abandoned; however, as the housing market rebounds, development will likely increase once again.

The northern boundary of Sparks lies at La Posada Drive in an area currently mostly vacant with some agricultural lands interspersed. On the east side of Pyramid Highway heading south, Sparks predominately remains this way until just south of the junction of Sparks Boulevard and Pyramid Way, where the land use abruptly turns to low- to medium-density residential. These vacant lands in the north are zoned for development as commercial, office, and medium-density residential, along with some high- and low-density residential and park/open space/recreational land use. The actual zoning categories for much of this land are as mixed-use or planned developments, which appear to be the method of land-use approvals that the City seems to be moving towards. This type of zoning allows for a more form-based development than restricting specific uses and gives more leeway to developers to meet their visions for communities.

Continuing south, development in Sparks lies east of Pyramid Highway and comprises predominately low-medium-density residential land use as it follows Sparks Boulevard south. Kiley Links golf course is also located in this area north of Los Altos Parkway. Between Los Altos Parkway and Sparks Boulevard is a large commercial/mixed-use development encompassing land on both sides of Pyramid Way. This commercial development has a variety of stores and is anchored by big-box retailers such as Walmart and Kohl's. The residential and commercial development in this area is approximately 50 percent complete.

South of this commercial development is a large piece of undeveloped open space owned by BLM that was recently leased to the City of Sparks. This parcel, approximately 285 acres in area, is now managed by the City of Sparks Parks and Recreation Department. The southern portion of this property, south of Disc Drive, is being developed into Wedekind Park; the northern portion is planned for construction of a new City courthouse. The remainder of Sparks within the Study Area is entirely low-density residential development with some parks and recreation areas spread throughout.

Another portion of Sparks within the Study Area lies west of Pyramid Way at the southern boundary of the Study Area. This land contains Wildcreek Golf Course and a series of other park and open space properties. There are also several low-medium-density residential developments in this area. Existing development in this area corresponds to its respective zoning code.

Washoe County

Approximately 7,260 acres of the Study Area are under the jurisdiction of Washoe County and contain the communities of Spanish Springs and Sun Valley. Spanish Springs, at the northern end of the Study Area is bounded by Calle de la Plata and the La Posada Drive/Eagle Canyon Drive intersection. Land use in this area is low-medium-density residential and a few commercial developments. Developed land currently only makes up approximately 50 percent of the land within the area, although much more is zoned for residential development with some projects already under way. South of La Posada Drive, county lands lie west of Pyramid Highway, and a large low-medium-density residential development takes up most of the land south to Dolores Avenue.

Sun Valley is a more established community and has predominantly medium-density residential development with a strip of commercial uses following the length of Sun Valley Boulevard from the El Rancho Drive/Dandini Boulevard intersection to 7th Street. Current zoning within both of these communities is congruent with the land uses.

Aside from the low-medium-density residential and commercial areas of Spanish Springs and Sun Valley, the remainder of the Washoe County lands within the Study



Area is almost entirely open lands, including large tracts of BLM lands. This land is either zoned open space or general rural.

Bureau of Land Management

BLM manages approximately 1,882 acres of land in the Study Area. These lands are made up of two large parcels located west of Pyramid Highway, north of McCarran Boulevard, and east of the Sun Valley Community and are entirely open and undeveloped. Managed for multiple uses, the lands are primarily used for passive recreation, such as hiking, mountain biking, and off-highway vehicle use and have numerous undesignated trails.

There are two grazing allotments within the Study Area: the Paiute Canyon allotment and the Wedekind allotment. These two allotments cover most of the Study Area (see Figure 4.1 in the *Pyramid Highway and US 395 Connection: Social Considerations, Right-of Way/Relocation Impacts, and Environmental Justice Technical Report* [RTC, 2012]). There is one active grazing permit within the Paiute Canyon allotment. There are no active permits within the Wedekind allotment. BLM land that would be potentially affected by the proposed action is not actively grazed currently, based on multiple and ongoing field observations.

The study area is located within the Wedekind and Pyramid mining districts. No active mining claims are currently located within the Study Area. Please refer to the *Pyramid Highway and US 395 Connection: Social Considerations, Right-of Way/Relocation Impacts, and Environmental Justice Technical Report* [RTC, 2012]) for more information on grazing allotments/permits and mining/mineral rights within the Study Area.

3.1.2.3 Future Land Use

The Study team gathered information regarding future land use from the local jurisdictions' master plans, discussions with relevant planning officials, and on-line research regarding proposed developments. Figure 3-2 displays future land use for the Study Area. Following is a description of future land use in the Study Area by political jurisdiction.

City of Reno

The Dandini Regional Center is planned for continued development as a regional center based around the existing TMCC Dandini Campus and DRI facilities. In order to achieve the type of urban, high-density, mixed-use development that is desired, residential, commercial, and retail development should continue to establish a mix of complementary uses in the area. Future development in this area is expected to have a minimum density of 14 dwelling units per acre. Additionally, the development of transit and pedestrian amenities will create an environment that promotes multimodal transportation options, while reducing traffic and supporting retail and business development.

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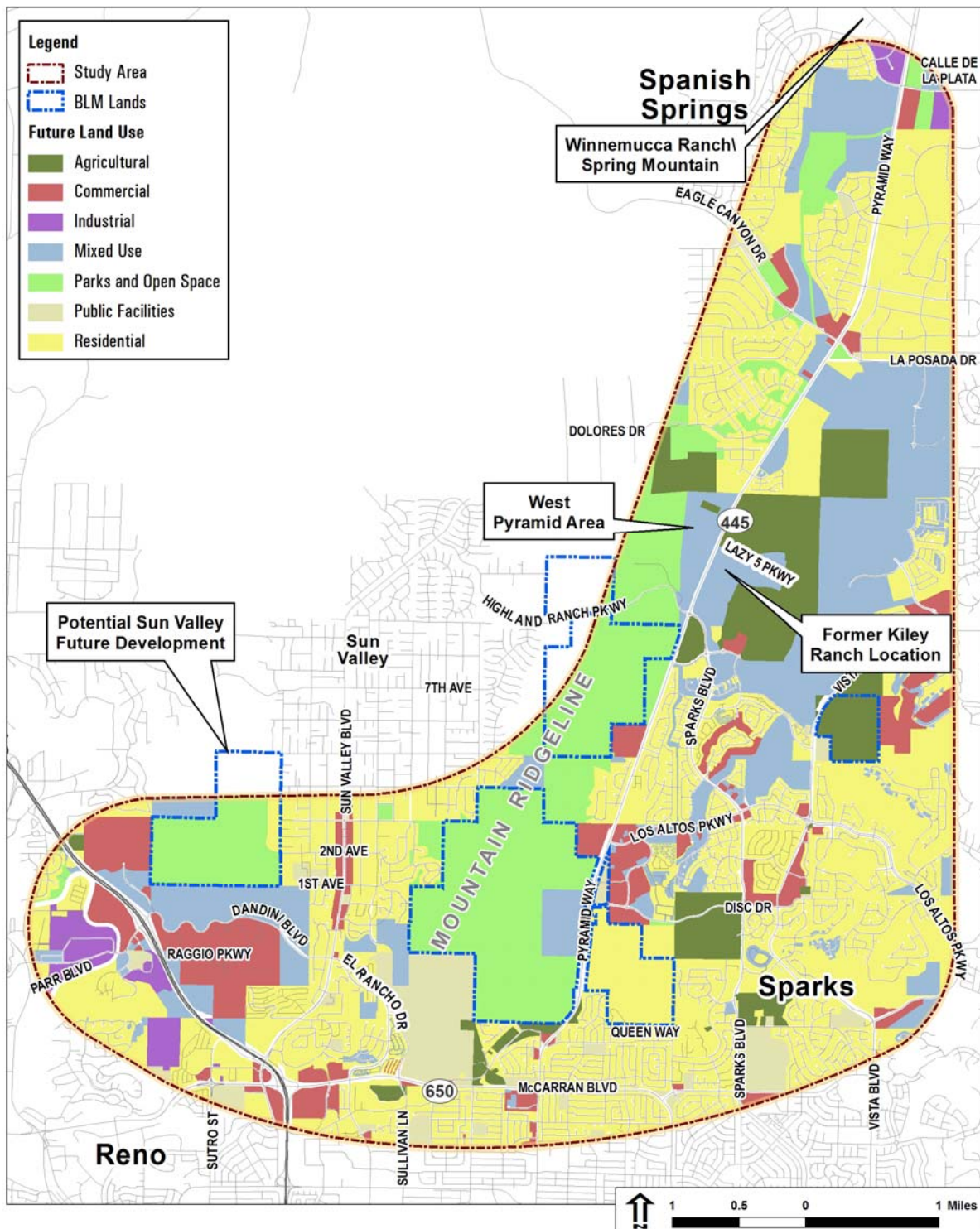


Figure 3-2. Future Land Use



Outside of the Dandini Regional Center, the Study Area appears nearly entirely built out; however, some future development will likely occur along the US 395 corridor, and redevelopment projects are expected south of the Study Area closer to downtown Reno. This will likely have little effect on the general density, land use, and transportation infrastructure as it relates to the Study.

City of Sparks

Development is occurring rapidly on undeveloped lands throughout Sparks and most prominently in the northern portions of the city that lie within the Study Area. Because most lands throughout northern Sparks have been developed recently over the past decade, opportunities for redevelopment are minimal and unlikely for the foreseeable future.

A large residential and commercial development had been planned for the area east of Pyramid Highway surrounding Sparks Boulevard and north to the Lazy 5 Regional Park, to be called Kiley Ranch. However, this development recently went bankrupt and plans were cancelled. This development was planned to encompass approximately 800 acres with over 600 acres of residential use and over 100 acres of parks, open space and other public facilities; the remainder was planned to be dedicated to light industrial, retail, and office uses. Phases of this development are in various stages of completion with many homes already sold and other areas not yet subdivided into lots. Although this property was recently sold through foreclosure, conversations with planners from Sparks indicate another similar development likely will occur in this area when the housing market improves.

Continued development will increase the commercial and residential density levels in northern Sparks and continue to expand, leaving little to no open lands within the city limits. Notable exceptions to this pattern within the Study Area will include the future Wedekind Park and the Lazy 5 Regional Park. Lands located east of Vista Boulevard and Los Altos Parkway will remain more open as medium-density residential developments and will be separated by bands of open space and rural/agricultural lands.

The entire eastern boundary of Sparks abuts BLM lands that will likely remain undeveloped open lands into the future. These lands will prevent continued expansion to the east and direct future expansions of the city and its SOI northwestward into the West Pyramid Area. Planning for the future development of this area includes predominantly residential uses located southwest of Eagle Canyon Drive and the Spanish Springs community.

Washoe County

Washoe County lands outside of the Sparks SOI but within the Study Area are made up of the communities of Spanish Springs and Sun Valley. Most lands of Spanish Springs located within the Study Area are already developed predominantly in residential uses.

The remaining land within the Study Area available for development consists of the area between Calle de la Plata and Eagle Canyon Road between the existing medium-density residential developments on the west side of Pyramid Way. This property is expected to be developed similar to the other residential developments already existing to the east and west of it. Some commercial, public facilities, and parks and open space are expected along Eagle Canyon Drive in this area.

Aside from some low-density residential development north of Calle de la Plata, the remainder of the lands throughout the Spanish Springs Planning Area will remain open or rural for the foreseeable future.

Sun Valley is more fully developed than Spanish Springs with little room for future development. Small areas available for possible infill development exist and would likely continue the existing pattern of medium-density residential development with an occasional commercial opportunity either along Sun Valley Boulevard or El Rancho Drive. One large piece of developable property of nearly 800 acres lies north and south of West Seventh Avenue/West Golden Valley Road. Nestled between the protected open space of Red Hill and BLM lands to the north, this area is expected to develop as low-density residential and rural uses.

Another notable development in Washoe County is still extremely early in the planning stages; however, it has potential to alter land use patterns in the region if and when it is constructed. Winnemucca Ranch (also known as Spring Mountain) is a planned development that includes approximately 6,120 acres of property located approximately 25 miles north of Reno. Currently, the only access to the area from the Reno/Sparks area is from north Pyramid Highway. Much of the land between Winnemucca Ranch and the current extent of urban development is BLM property slated to remain in public holding. Early planning for Winnemucca Ranch estimates that half of the land area will be park and open space uses. Preliminary estimates on development statistics approximate a population of over 23,000 in 12,000 residential dwelling units. Plans also include approximately 600,000 square feet of retail floor area, 800,000 square feet of professional office floor area, and 600,000 square feet of light industry/office flex floor area.

Bureau of Land Management

In the Final Southern Washoe County Urban Interface Amendment, future plans for approximately 166,550 acres of public land in Southern Washoe County are detailed. Of that total acreage, 160,020 are designated for retention in public ownership. Lands proposed to be released from public ownership include those lands sold for disposal as well as those designated for use by state and local government for Recreation and Public Purposes (R&PP). Many of these lands have already been released from public ownership, including the Red Hill property, released through disposal, and the Wedekind Park property, released through an R&PP lease. Other smaller parcels in the



Study Area have been released, but most of the remaining BLM lands near the Study Area will be retained in public ownership and will continue to be managed to protect open space, visual, recreation, watershed, and wildlife resources.

3.1.3 Land Use Impacts

This section summarizes direct and indirect land use impacts from the build alternatives. Figure 3-3 through Figure 3-5 display the alignment of the four build alternatives overlaid on the future land use map, including insets to show the detail where each alternative crosses the Sun Valley community.

3.1.3.1 No-Action Alternative

Many of the transportation improvements included in the No-Action Alternative are proposed to support existing and planned development within the Study Area and will be local roadway connections within planned developments. Therefore, these are consistent with local land use planning. However, comprehensive and regional planning documents for Washoe County, TMRPA, RTC, and the City of Sparks all call for improvements to Pyramid Highway and improved east-west connectivity, such as an outer ring highway. Since the No- Action Alternative does not include these improvements, it would not be consistent with these plans. The No-Action Alternative would not result in new impacts to BLM grazing allotments or mining/mineral claims.

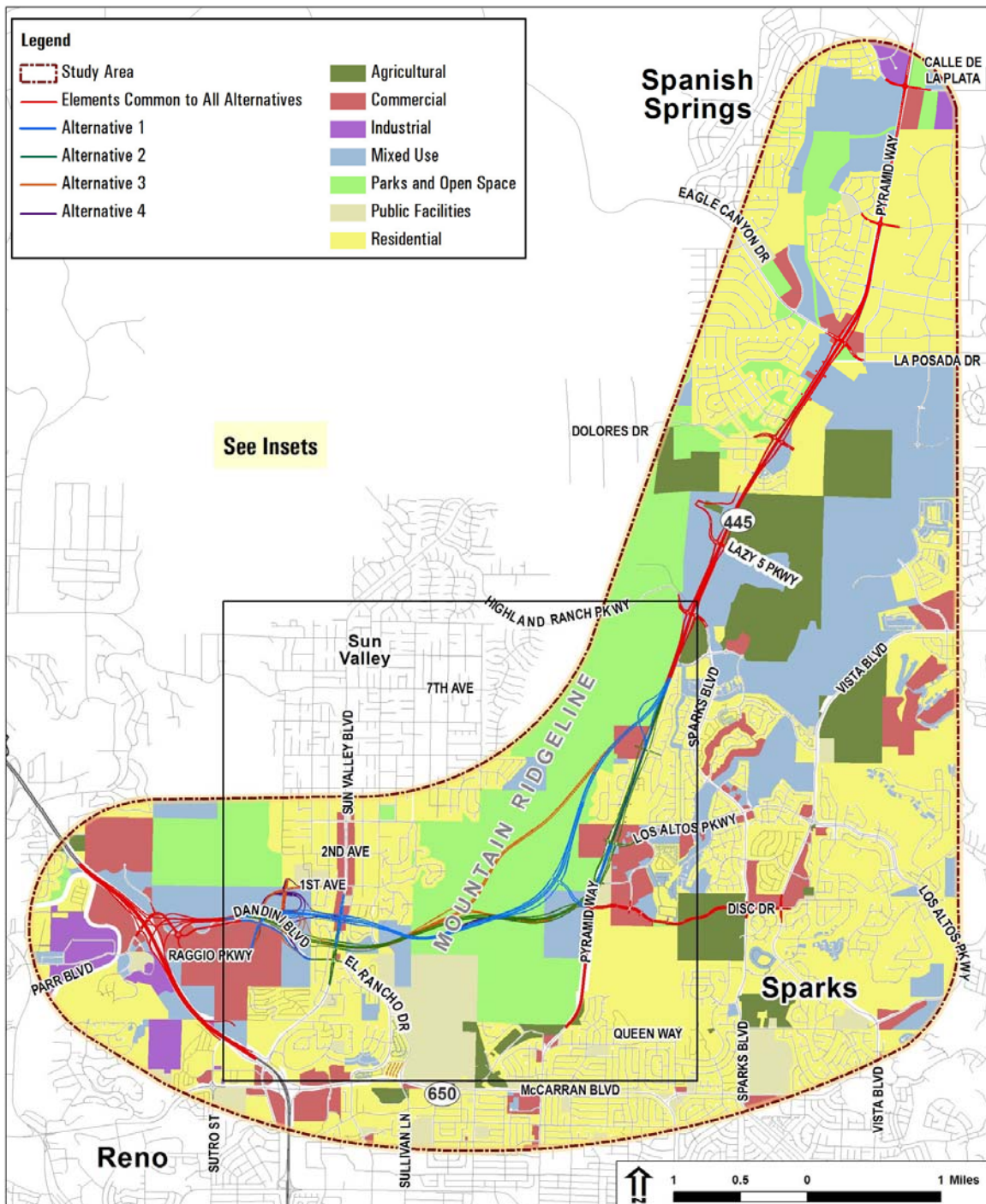
3.1.3.2 Build Alternatives

Impacts Common to All Build Alternatives

Pyramid Highway is seen as a primary transportation corridor. Improvements under all build alternatives would support that function and allow it to continue to support ongoing commercial and economic development. Inclusion of bicycle and pedestrian facilities and improvements to transit service were specifically incorporated into build alternatives to help meet local land use planning and transportation goals. Therefore, all build alternatives are consistent with local land use plans.

All of the build alternatives would meet local planning goals, including:

- Providing additional capacity on Pyramid Highway to meet the needs of existing and future development.
 - Improving connectivity, especially for the Sun Valley community.
 - Enhancing multimodal transportation options.
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Note: Insets are shown on Figure 3-4 and Figure 3-5.

Figure 3-3. Land Use Impacts Locations



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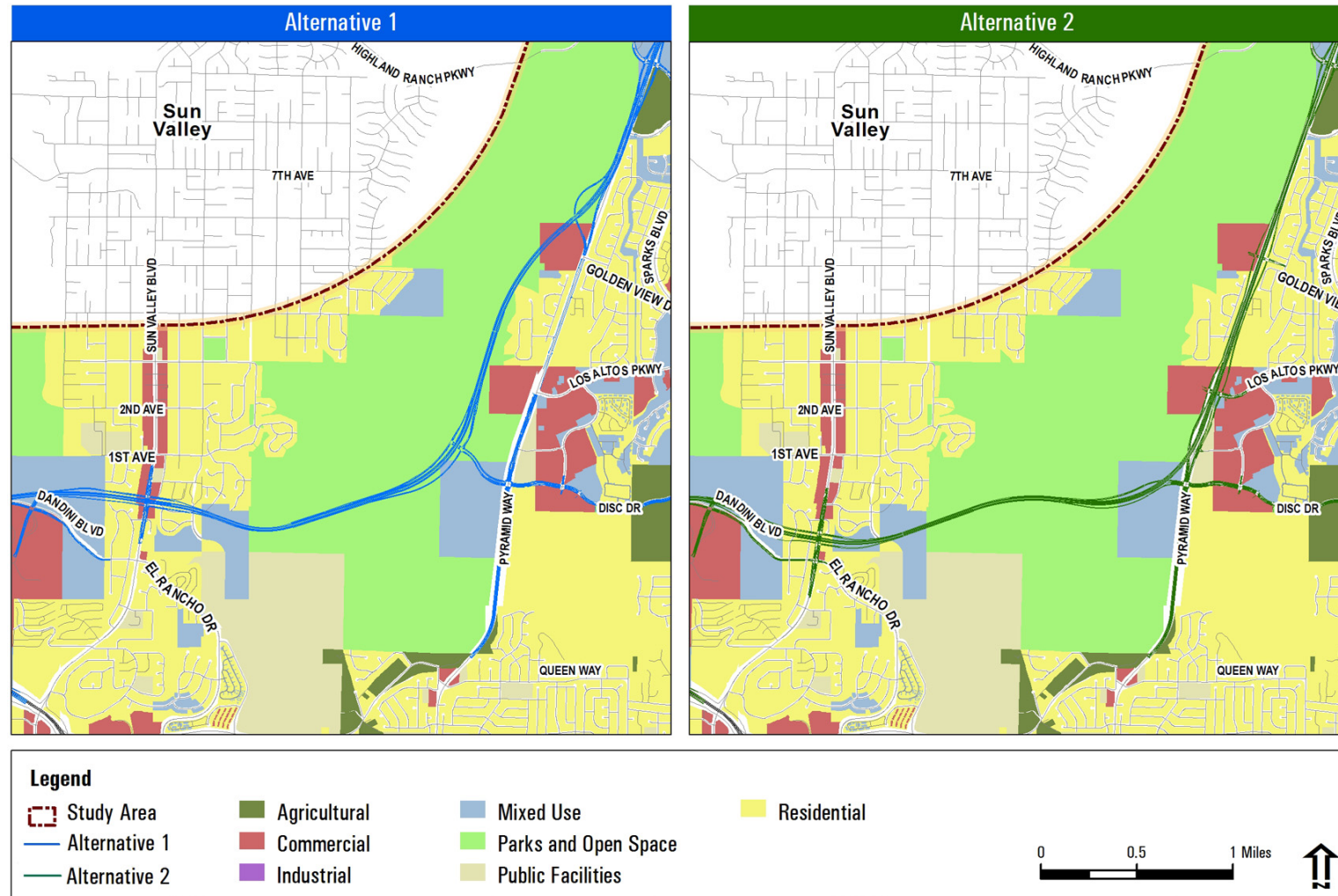


Figure 3-4. Land Use Impacts – Alternatives 1 and 2

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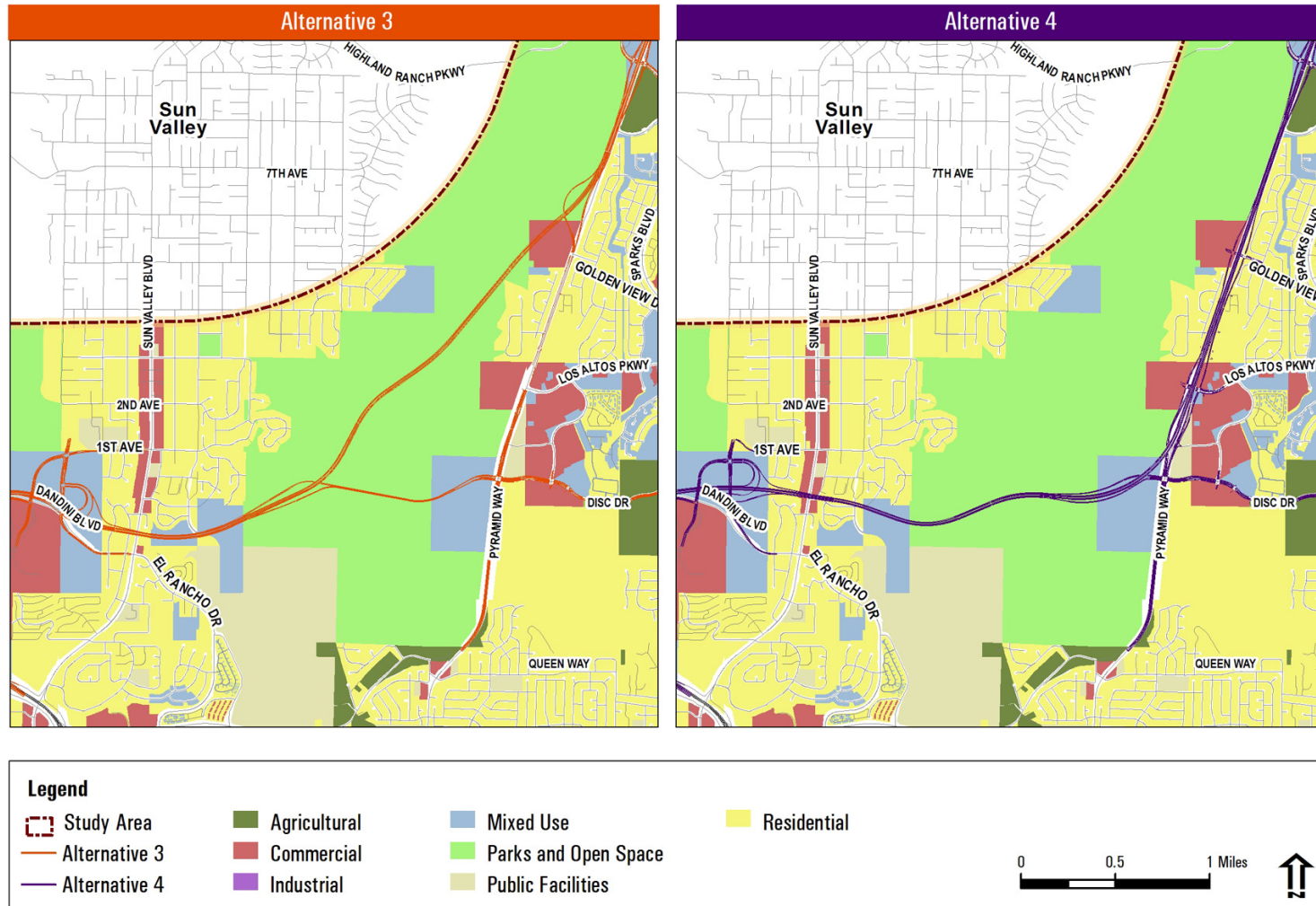


Figure 3-5. Land Use Impacts – Alternatives 3 and 4

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1 Some build alternatives would impact more BLM land than others, as described under
2 the build alternatives below. BLM lands located between Sparks and Sun Valley where
3 the US 395 Connector would be aligned are managed to protect open space, visual,
4 recreation, watershed, and wildlife resources. According to the BLM, use of these lands
5 for highway purposes is not incompatible with the current resource management plans
6 for this area; therefore, no amendment to the existing plan would be necessary. BLM is
7 currently updating the resource management plans for this area with an estimated
8 completion in late 2015, and can reflect the highway plan in future plan revisions.

9
10 BLM land that would be affected by the proposed action is not actively grazed, based on
11 multiple and ongoing field observations. Therefore, no impacts to grazing allotments
12 within the Study Area are anticipated under any build alternative. Effects to any grazing
13 allotment and/or permits would be further investigated during later stages of project
14 development, including Final EIS preparation, final design, and preparation of the Letter
15 of Consent appropriating BLM lands for transportation use.

16
17 No mining or mineral claims are currently located within the Study Area; therefore, no
18 impacts to such claims would occur under any build alternative.

19
20 All build alternatives would require the conversion of lands into transportation uses and
21 result in the acquisition of property currently in, or planned and zoned for, residential or
22 commercial development. Most of these lands currently are vacant and directly adjacent
23 to the existing Pyramid Highway. Despite conversion of land, the build alternatives
24 would provide improved access and circulation to these areas to support land use
25 planning goals found in the relevant land use plans.

26
27 The proposed US 395 Connector would be a new roadway alignment and located
28 primarily on vacant lands. Although the City of Sparks and Washoe County
29 comprehensive plans include a new highway connection in this area, the potential for
30 land use incompatibilities exists at the location where the new US 395 Connector would
31 cross the community of Sun Valley.

32
33 Interchanges along the proposed Pyramid Highway alignment common to all elements
34 include those at Eagle Canyon Drive, Dolores Drive, Lazy 5 Parkway, Sparks Boulevard,
35 Disc Drive, and the US 395 Connector/US 395/Parr Boulevard. Zoning surrounding
36 these interchanges is predominantly mixed-use and commercial, which would be
37 compatible with highway interchanges.

38
39 Future land uses envisioned in the various plans within the Pyramid Highway corridor
40 from Highland Ranch Parkway north to Calle De La Plata include predominantly
41 mixed-use and residential development; there are some commercial uses clustered near
42 Eagle Canyon Drive and Calle De La Plata. Proposed transportation improvements
43 would support these types of uses because the freeway interchanges and highway
44 intersections would be located in areas where commercial and mixed use is envisioned.

Locating interchanges in these areas would enhance the development potential in these areas for commercial uses. Future development envisioned in the Sparks and Spanish Springs master plans recommend higher density residential and increased commercial development adjacent to Pyramid Highway. Therefore, future land uses associated with the build alternatives in this area are compatible with those land uses envisioned in the various plans.

Future land uses surrounding US 395 and along Disc Drive would also be similar under all build alternatives. The City of Reno envisions the area surrounding the Parr Boulevard/Dandini Boulevard interchange on US 395 to continue to develop as a commercial and institutional use area. Transportation improvements proposed for that area would support this type of development and provide the increased accessibility that industrial, office, and institutional uses require. Widening of Disc Drive and the new connection to the US 395 Connector would increase traffic and push development in this area toward commercial or high-density residential as opposed to the low-density residential envisioned by Sparks. Therefore, improvements along Disc Drive would likely lead to future development that is less compatible with the type envisioned for future land uses.

Indirect Land Use Impacts

Aside from existing and proposed park lands, BLM property, and other areas characterized by such factors as steep slopes that render land unsuitable for development, virtually all areas in the Study Area are slated for future development. Many of these developments, described above in the future land use discussion, have been put on hold as a result of the recent economic downturn. Assuming an improvement in the economic outlook, many of these planned developments could occur prior to completion of any build alternative. If not, completion of the proposed transportation improvements might work to accelerate the rate of developments that have already been planned. The considerable investment in transportation infrastructure and associated transportation benefits may factor into decisions regarding whether to develop these properties.

Indirect impacts to land use are more regional in nature and relate to the potential for induced growth. Induced growth relates to the potential for land use patterns to shift in response to changes in access brought on by improvements, such as this project. This shift can be exhibited through increases in density, accelerated development timelines, or changes in the location of development. These impacts would be similar under all build alternatives because they would result from improvements in access to areas that would create a more favorable climate for development. Under all build alternatives, growth would continue to be market-driven and occur in accordance with City of Sparks and Washoe County comprehensive plans. Growth in Sparks and Spanish Springs would continue to be focused along the Pyramid Highway corridor with commercial development located along Pyramid Highway and residential development set back from the highway.



Water supply is recognized as a major limiting factor to increased development in Sparks and the Spanish Springs areas. Washoe County, in cooperation with the Truckee Meadows Water Authority and TMRPA, regulates growth in the Planning Areas north of Sparks so that development does not exceed the water supply limits. Outside of existing and approved residential and commercial developments, lands located within the Spanish Springs Planning Area are slated to remain in rural uses with a regulatory zoning designation of general rural allowing for one unit per 40 acres.

This Rural Service Area (also referred to as the Rural Development Area in the *Truckee Meadows Regional Plan*) is not planned for community water and sanitary sewer services. In addition, Washoe County amended its Development Code in 1995 to require importing Truckee River water to serve new development in an effort to reduce municipal groundwater pumping. The *Truckee Meadows Regional Plan* requires that master plans of the local governments not allow additional development within the Rural Development Area that requires the provision of municipal service, and must not allow new divisions of land that would create a parcel less than five acres in size. These regulatory restrictions on development in the Rural Service Area make it unlikely that the project would result in induced growth on lands outside of the existing Truckee Meadows Service Area.

Other indirect land use impacts relate to location and type of future development. For example, access changes from the build alternatives may concentrate commercial development at the proposed interchanges on Pyramid Highway and the US 395 Connector. Other improvements include one-way frontage roads adjacent to Pyramid Highway between Eagle Canyon Drive and Dolores Drive, and between Lazy 5 Parkway and Sparks Boulevard, and changes in access for all development between Eagle Canyon Drive and Sparks Boulevard. The proposed frontage roads would provide less restrictive access control than currently exists along Pyramid Highway. Future development would use these frontage roads to access Pyramid Highway via interchanges. New residential developments could take advantage of the improved access by connecting new roadways to the proposed frontage roads.

In summary, all build alternatives would support future development in the Study Area. The local jurisdictions' future land use plans call for development on most lands within the Study Area outside of particular tracts that are to remain open and undeveloped. The build alternatives might alter the rate, type and location of development currently planned. However, these effects would not result in major alterations to the general land use patterns or densities planned throughout the Study Area. Also, changes to land use beyond the Study Area, specifically to lands to the north and east of the Study Area, would be limited because of existing development restrictions in these areas.

Alternative 1

Overall, Alternative 1 would result in the conversion of approximately 939 acres of land to transportation use. Most of these lands, approximately 57 percent, are currently vacant. Of the build alternatives, Alternative 1 would use the most vacant land. Uses on lands currently occupied that would be converted are 22 percent open space, 11 percent residential, and 10 percent commercial, and a small amount (less than 1 percent) of industrial and agricultural. These conversions would result in the full acquisition of an estimated 250 separate parcels and partial acquisition of 231 additional parcels (see Table 3-2). Additionally, Alternative 1 would convert approximately 381 acres, the most of any build alternative, from BLM ownership into transportation use.

The proposed US 395 Connector would be a new roadway alignment and located primarily on vacant lands. Although the City of Sparks and Washoe County comprehensive plans include a new highway connection in this area, the potential for land use incompatibilities does exist at the location where the new US 395 Connector would cross the community of Sun Valley. Alternative 1 would follow the Rampion Way crossing, which is the northern of the two potential alignments through this area. Although both routes would result in property acquisitions and transportation uses placed directly adjacent to existing residential and small commercial properties, the Rampion Way crossing would utilize less vacant lands. Total potential relocations in the Sun Valley area under Alternative 1 would include 96 single-family residences and 5 commercial businesses.

Improvements under Alternative 1 would result in increased access and would support commercial development along the length of Sun Valley Boulevard, as well as continued residential development throughout Sun Valley. The *Sun Valley Area Plan* envisions this type of redevelopment occurring in Sun Valley; therefore, future land uses resulting from Alternative 1 would be consistent with land use planning.

Alternative 1 improvements along Pyramid Highway between Disc Drive and Sparks Boulevard are compatible with both existing and future land uses and zoning. However, this alternative would potentially require acquisitions and relocations of 61 residences and 3 commercial properties between Los Altos Parkway and Kiley Parkway. The location for the freeway facility would be situated below the ridge line of the mountains and west of the existing Pyramid Highway. This alignment would use mostly vacant lands and would require less widening of Pyramid Highway between Disc Drive and Sparks Boulevard.

Future land uses envisioned by Sparks in this area are similar to existing land uses, with the Sparks Galleria commercial development remaining a strong economic activity center for the region. Although Alternative 1 would result in the potential relocation of a small number of these businesses, improvements in access would allow this area to continue to be a strong economic activity center for the region. Therefore, future land



uses resulting from Alternative 1 in this area are consistent with the future land uses envisioned in *The Sparks Plan*.

Alternative 2

Overall, Alternative 2 would result in the conversion of approximately 849 acres of land to transportation use, the least overall amount of land converted by any of the build alternatives. Most of these lands, approximately 54 percent, are currently vacant. Uses on lands currently occupied that would be converted are 20 percent open space, 13 percent residential, and 12 percent commercial land use. The remaining small amount is split between industrial and agricultural. These conversions result in the full acquisition of 259 separate parcels, 222 additional parcels would be partially acquired. The alignment of the US 395 Connector under Alternative 2 would result in conversion of approximately 271 acres of BLM land currently managed for open space uses, into transportation use. Along with Alternative 4, which converts the same amount, this is the least amount of BLM lands impacted by any alternative and therefore, the most consistent with BLM land management plans.

The proposed US 395 Connector would be a new roadway alignment that would cross the community of Sun Valley. This alignment would result in property acquisitions and transportation uses placed directly adjacent to existing residential and small commercial properties. Alternative 2 would follow the south of Rampion Way crossing of Sun Valley and would include an interchange at Sun Valley Boulevard. The south of Rampion Way crossing would utilize more lands that are currently vacant and, therefore, can be considered the more compatible with existing and future land uses. Total potential relocations in the Sun Valley area under Alternative 2 would include 38 single-family residences, 120 apartment rental units, and 2 commercial businesses.

Improvements under Alternative 2 would result in increased access and support commercial development along the length of Sun Valley Boulevard, as well as continued residential development throughout Sun Valley. The *Sun Valley Area Plan* envisions this type of redevelopment occurring in Sun Valley; therefore, future land uses resulting from Alternative 2 would be consistent with land use planning.

Alternative 2 would include a six-lane freeway cross-section replacing the existing Pyramid Highway between Disc Drive and Sparks Boulevard. This alignment would include one-way frontage roads between half interchanges at Disc Drive and Golden View Drive. The proposed frontage roads would alter traffic patterns in the area and create less restrictive access control than currently exists along Pyramid Highway. Future development could tie directly into these frontage roads to access Pyramid Highway via the interchanges. Alternative 2 would result in the potential relocation of 102 single family residential units and 20 commercial properties adjacent to Pyramid Highway in this area.

Improvements under Alternative 2 along Pyramid Highway between Disc Drive and Highland Ranch Parkway are less compatible with future land uses envisioned in *The Sparks Plan*. The loss of these 20 commercial properties from the Sparks Galleria economic activity center would result in the potential relocation of 30 individual businesses representing a large portion of the existing businesses. Although the Sparks Galleria would continue to be a large retail area and the access benefits provided by the transportation improvements would benefit the remaining businesses, this would reduce the scope of the Sparks Galleria as an economic power center for the region. The City of Sparks envisions this area remaining a strong economic center of activity in the future; however, future land uses resulting from Alternative 2 would reduce the ability of Sparks Galleria to meet this vision.

Alternative 3

Overall, Alternative 3 would result in the conversion of approximately 973 acres of land to transportation use, the most of any of the build alternatives. Most of these lands, approximately 54 percent, are currently vacant. Uses on lands currently occupied that would be converted are 26 percent parks and open space, 10 percent residential, and 9 percent commercial, with the remaining small amount being split between industrial and agricultural. These conversions result in the full acquisition of 195 separate parcels, and 218 additional parcels would be partially acquired. Alternative 3 results in the smallest number of full acquisitions and the smallest number overall parcels impacted. This alignment would also result in conversion of approximately 363 acres of land from BLM ownership.

The proposed US 395 Connector would be a new roadway alignment resulting in property acquisitions and transportation uses placed directly adjacent to existing residential and small commercial properties where it would cross the community of Sun Valley. Although the potential for land use incompatibilities does exist, the US 395 Connector alignment under Alternative 3 would follow the south of Rampion Way crossing, the more compatible location to existing land use, and would include an interchange immediately west of Sun Valley Boulevard. Alternative 3 would result in the potential relocation of 33 single-family residences and up to 120 residential apartment units.

Improvements under Alternative 3 would result in increased access and support commercial and residential development throughout Sun Valley similar to Alternatives 1 and 2. However, because Alternative 3 includes an interchange located west of Sun Valley instead of on Sun Valley Boulevard, the increased development along Sun Valley Boulevard could be reduced in scope. At the proposed interchange location within the Dandini Regional Center, additional development is envisioned and would be supported by this new interchange. Therefore, future land uses resulting from Alternative 3 would be consistent with the City of Reno's envisioned future land use for this area.



Alternative 3 would include an alignment for the US 395 Connector that would run along the ridge line of the mountains between Sun Valley and Highland Ranch Parkway. This alignment would not include any interchanges between Disc Drive and Highland Ranch Parkway and would have the typical six-lane freeway cross-section. Improvements along the length of Pyramid Highway in Alternative 3 would be generally compatible with applicable land use plans. The six-lane freeway replacing Pyramid Highway would result in the potential relocation of 61 single-family residences and 3 commercial businesses between Los Altos Parkway and Kiley Parkway. Aside from the conversions and acquisitions discussed above, it would be compatible with both existing and future land uses.

Future land uses envisioned by the City of Sparks in this area are similar to existing land uses, with the Sparks Galleria commercial development remaining a strong economic activity center for the region. Similar to Alternative 1, Alternative 3 would result in the potential relocation of a small number of these businesses. However, improvements in access would allow this area to continue to be a strong economic activity center for the region. Therefore, future land uses resulting from Alternative 3 in this area would be consistent with the future land uses envisioned in *The Sparks Plan*.

Alternative 4

Overall, Alternative 4 would result in the conversion of approximately 866 acres of land to transportation use. A majority of these lands, approximately 55 percent, are currently vacant. Uses on lands currently occupied that would be converted are 20 percent open space, 13 percent residential, and 12 percent commercial, and the remaining small amount being split between industrial and agricultural. These conversions result in the full acquisition of 301 separate parcels. An additional 207 parcels would be partially acquired, for a total of 508 separate parcels that would be impacted through acquisition. Alternative 4 impacts the highest number of individual parcels and results in the highest number of full property acquisitions. The proposed alignment of the US 395 Connector would result in conversion of approximately 271 acres of land from BLM ownership into transportation use. Along with Alternative 2, which converts the same amount, this is the smallest amount of BLM lands impacted by any alternative which would make these two build alternatives the most consistent with land and resource management plans of the BLM.

Under Alternative 4, the US 395 Connector would be a new roadway alignment located primarily on vacant lands and would follow the Rampion Way crossing through Sun Valley. This would potentially result in 88 single-family residential relocations and 4 commercial relocations in this area and would lead to more land use incompatibilities than the south of Rampion Way crossing. An interchange immediately west of Sun Valley Boulevard would be included under this alternative.

Similar to Alternative 3, improvements under Alternative 4 would result in increased access and support commercial and residential development throughout Sun Valley.

Alternative 4 includes an interchange located west of Sun Valley instead of on Sun Valley Boulevard, which could reduce the scope of increased development along Sun Valley Boulevard. At the proposed interchange location within the Dandini Regional Center, additional development is envisioned and would be supported by this new interchange. Therefore, future land uses resulting from Alternative 4 would be consistent with the City of Reno's envisioned future land use for this area.

Alternative 4 would include a six-lane freeway cross-section replacing the existing Pyramid Highway between Disc Drive and Sparks Boulevard. This alignment would include one-way frontage roads between half interchanges at Disc Drive and Golden View Drive. The proposed frontage roads would alter traffic patterns in the area and create less restrictive access control than currently exists along Pyramid Highway. Future development could tie directly into these frontage roads to access Pyramid Highway via the interchanges. However, Alternative 4 would result in the potential relocation of 102 single family residential units and 20 commercial properties adjacent to Pyramid Highway in this area.

Similar to Alternative 2, improvements under Alternative 4 along Pyramid Highway between Disc Drive and Sparks Boulevard are less compatible with future land uses envisioned in *The Sparks Plan* than improvements under Alternatives 1 and 3. The loss of these 20 commercial properties from the Sparks Galleria economic activity center would result in the potential relocation of 30 individual businesses representing a large portion of the existing businesses. Although the Sparks Galleria would continue to be a large retail area and the access benefits provided by the transportation improvements would benefit the remaining businesses, this would reduce the scope of the Sparks Galleria as an economic power center for the region. The City of Sparks envisions this area remaining a strong economic center of activity in the future; however, future land uses resulting from Alternative 4 would reduce the ability of Sparks Galleria to meet this vision.

Impact Summary

The four build alternatives can be considered generally similar from a land use perspective. There are three areas that are similarly impacted by all build alternatives—Pyramid Highway north of Sparks Boulevard, the Disc Drive area, and the US 395/Dandini Boulevard interchange. All build alternatives also include similar elements, such as multimodal improvements, increased capacity on Pyramid Highway, and improved access. These similarities result in the build alternatives all being considered generally consistent with applicable land use planning for the region. Additionally, all build alternatives would support future development in the Study Area, although they may alter the rate, type and location of development currently planned. Induced growth effects would be limited under all build alternatives because of existing development restrictions in these areas.



Differences among the alternatives are exhibited in the direct impacts to land uses between US 395 and Pyramid Highway and on Pyramid Highway between Disc Drive and Sparks Boulevard. Table 3-1 provides a summary of the direct impacts to existing land use by alternative and shows that Alternative 3 results in the largest amount of total land converted, and Alternative 1 results in the most impacts to BLM lands. Impacts to residential and commercial land uses are very similar among all the alternatives.

Table 3-1 provides a summary of land use impacts for each build alternative.

Table 3-1. Existing Land Uses Converted to Transportation Use by Alternative

Land Use	Alt. 1	Alt. 2	Alt. 3	Alt. 4
Vacant	534 acres (57%)	456 acres (54%)	530 acres (54%)	478 acres (55%)
Park	202 acres (22%)	169 acres (20%)	252 acres (26%)	169 acres (20%)
Residential	103 acres (11%)	108 acres (13%)	96 acres (10%)	109 acres (13%)
Commercial	93 acres (10%)	106 acres (12%)	87 acres (9%)	102 acres (12%)
Other	8 acres (<1%)	8 acres (<1%)	8 acres (<1%)	8 acres (<1%)
BLM Land	381 acres	271 acres	363 acres	271 acres
Total	939 acres (100%)	849 acres (100%)	973 acres (100%)	866 acres (100%)

Table 3-2 displays impacts to individual parcels and relocations by alternative. Alternative 2 results in far higher numbers of total relocations, while Alternative 1 results in the lowest number of relocations.

Table 3-2. Property Acquisitions by Alternative

Acquisition/Relocation Type	Alt. 1	Alt. 2	Alt. 3	Alt. 4
Full Parcel Acquisitions	250	259	193	301
Partial Parcel Acquisitions	231	222	220	207
Total Parcels Impacted	481	481	413	508
Single-Family Residential Relocations	188	172	127	220
Residential Apartment Unit Relocations	0	120	120	0
Commercial Relocations	14	26	9	28
Total Relocations	202	318	256	248

Finally, access differences on Pyramid Highway provide a distinguishing characteristic among the build alternatives. Alternatives 2 and 4 include the alignment option with one-way frontage roads. These alternatives would facilitate development between the proposed interchanges, while Alternatives 1 and 3 would likely concentrate development at the interchanges of Disc Drive and Sparks Boulevard.

Induced growth effects would be similar under all build alternatives, resulting in minor changes in the rate, type and location of development. However, these changes would not conflict with existing plans for development that are promoted by the local

jurisdictions. Also, there would be little to no change in development patterns outside of the study area through induced growth. All build alternatives would include improvements within the same corridors, add generally similar capacities within those corridors, and include similar additional features such as multimodal improvements. Outside of specific protected lands, the local municipalities all envision the entire Study Area to be built out in the coming decades. The proposed improvements would only support this expected development, not drive it.

Outside of the Study Area, specifically lands accessed by Pyramid Highway and located to the north in Spanish Springs and beyond, much of the land is protected from development by binding regulatory requirements that will continue to prevent induced growth even with the proposed transportation improvements. These protections include requirements for sustainable water supplies, zoning codes that prevent increased density, and agreements to prevent the provision of city services beyond the existing Truckee Meadows Service Area.

3.1.4 Land Use Mitigation

Pyramid Highway improvements would occur within existing right-of-way to the greatest possible extent. Inclusion of bicycle and pedestrian facilities and improvements to transit service were specifically incorporated into the build alternatives to help meet local land use planning and transportation goals. Continued close coordination with local planners will also make sure any induced growth in the vicinity of new access points is recognized and planned for.

This Study has involved close coordination with local planners to help ensure consistency between build alternatives and local land use planning efforts.

If a build alternative is selected in the Record of Decision, the Lead Agencies will seek to avoid and minimize impacts to existing development during final design. Also, RTC and/or NDOT would work with local planners to incorporate a build alternative into future land use plans and modify future land use and zoning as needed.

To mitigate for property impacts, RTC and/or NDOT will comply with the Uniform Relocation Assistance and Real Property Acquisitions Policies Act of 1970, as amended (URA) Section 205(a).

Conversion of BLM land for the US 395 Connector would not require a revision to BLM's management plan; BLM would reflect the highway project in future plan revisions.

Because BLM land that would be affected by the proposed action is not actively grazed, no effects to grazing allotments are anticipated. Effects to any grazing allotment and/or permits and necessary mitigation measures would be further investigated during later



1 stages of project development, including Final EIS preparation, final design, and the
2 right-of-way process.

3
4 No mining or mineral claims are currently located within the Study Area. If valid
5 mineral claims have occurred within the preferred alternative alignment (if a build
6 alternative is selected as the preferred alternative) on the date of the Letter of Consent
7 appropriating the right-of-way, NDOT will obtain permission as may be necessary from
8 claim holders to account for such claims within the right-of-way.

9 **3.2 SOCIAL RESOURCES**

10 The section discusses the social conditions within the Study Area, focusing on
11 population trends, housing trends, community facilities, and transit provisions. The
12 alternative's effects to the social environment, which include changes in community
13 cohesion and access to community facilities, also are discussed. Refer to *Pyramid*
14 *Highway and US 395 Connection: Social Considerations, Right-of-Way/Relocation Impacts, and*
15 *Environmental Justice Technical Report* (RTC, 2012) for details.

16 **3.2.1 Methods**

17 The Study team collected data to describe the Study Area's demographic composition in
18 terms of population, housing characteristics, and community facilities. Information
19 sources included regional and local transportation plans, local comprehensive plans,
20 and the U.S. Census Bureau. Also, the Study team coordinated with local planners and
21 community representatives to gather information about social conditions. Assessing
22 social impacts involved weighing adverse effects from the alternatives against expected
23 benefits.

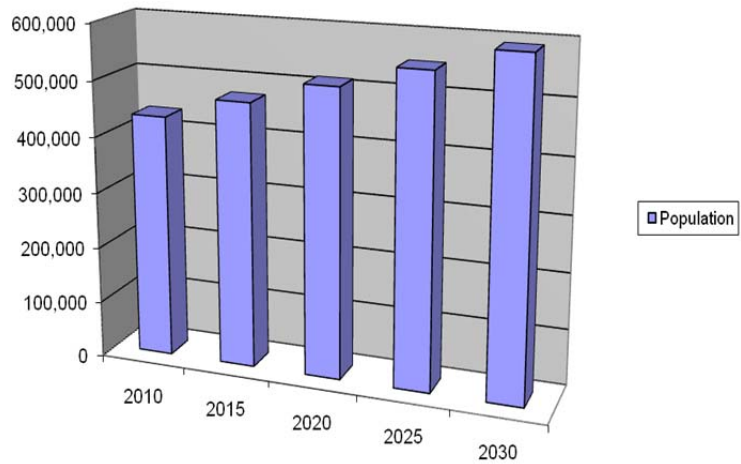
24 **3.2.2 Existing Conditions**

25 **3.2.2.1 Population**

26 Washoe County experienced consistent population growth between 1990 and 2000, at
27 the end of the 20th century. While the County population increased by 33.3 percent from
28 1990 to 2000, Reno and Sparks populations grew by 34.8 and 24.3 percent, respectively
29 (U.S. Census Bureau, 1990 and 2000). The growth of Sparks was substantially smaller
30 than both the County and Reno during this period. However, between 2000 and 2010,
31 Sparks experienced population growth of 36.1 percent, and grew faster than both the
32 County (24.1 percent) and Reno (24.8 percent) (U.S. Census Bureau, 2000 and 2010).
33 Sparks was reported as the fastest growing city in Nevada between 1999 and 2008 (City
34 of Sparks website, 2011).

35
36 According to the TMRPA Consensus Forecast (2010) population predictions, and despite
37 the recent economic downturn, these growth trends are expected to continue. Figure 3-6
38 shows population forecasts between 2010 and 2030 for Washoe County using the *Washoe*
39 *County Consensus Forecast* (TMRPA, 2010).

As of 2010, approximately 12 percent of the population of Washoe County was age 65 or over (U.S. Census Bureau). The age distribution of the population is expected to shift over the next decade. Changes of note include the continued aging of the baby boomer population, a decrease in the working group (ages 20 to 64), and a marked increase in the retired group (ages 65 and older) (TMRPA, 2010). Population by age cohort for 2010 and 2030 is shown in Table 3-3.



Source: TMRPA Washoe County Consensus Forecast, 2010.

Figure 3-6. Washoe County Population Projections

Table 3-3. Age Distribution in Washoe County

Age	2010		2030	
	Population	Percent of Total	Population	Percent of Total
Preschool (Ages 0-4)	31,435	7%	45,000	7%
School (Ages 5-19)	85,269	20%	124,530	21%
Working (Ages 20-64)	258,520	61%	344,406	55%
Retired (Ages 65+)	51,110	12%	99,983	17%

Source: TMRPA Washoe County Consensus Forecast, Final, 2010

3.2.2.2 Housing

From 2000 to 2010, the number of total housing units increased by 28.4 percent in Washoe County and by 29.1 percent in Reno. In the same time period, housing units in Sparks increased more rapidly, by 40.1 percent (U.S. Census Bureau, 2010). Table 3-4 shows housing statistics for the area.

According to *The Sparks Plan* (2007), the city's population was growing during the 1980s and 1990s at a much faster rate than the housing stock was being built. Because of extensive population growth, many housing structures were built between April 2000 and October 2006. These particular housing structures comprised nearly 22 percent of the total housing units in the city in 2007, which is higher than the housing units built in



Washoe County during this time (*The Sparks Plan*, 2007). Overall, the number of building permits issued in Sparks during 2005 (594 permits) was over 112 percent more than that issued in 2000.

Table 3-4. Housing Statistics

Housing Type	Sparks			Reno			Washoe County		
	1990	2000	2010	1990	2000	2010	1990	2000	2010
Total Housing Units	21,660	26,025	36,455	61,384	79,453	102,582	112,193	143,908	184,841
Occupied	20,561	24,601	33,502	57,286	73,904	90,924	102,294	132,084	163,445
-Owner	11,135	14,698	19,595	24,409	35,134	43,666	55,335	78,296	95,678
-Renter	9,426	9,903	13,907	32,877	38,770	47,258	46,959	53,788	67,487
Vacant	1,099	1,424	2,953	4,098	5,549	11,658	9,899	11,824	21,396

Source: US Census Bureau, 1990, 2000, 2010

With the recent downturn of the economy, the housing industry has slowed considerably. According to statistics from the Washoe County Building Department (2013), the number of new residential units dropped drastically since 2005. Table 3-5 shows the number of new family units built in Washoe County between 2001 and 2012. The trend has been strong growth between 2001 and 2005, rapid decline starting in 2006 that bottomed out in 2010, followed by slow recovery in 2011 and 2012.

Table 3-5. New Family Units: Washoe County

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Number of New Residential Units in Washoe County ¹	1,284	1,286	1,040	1,098	906	642	369	134	53	26	67	110

¹ Unincorporated Washoe County, excluding Incline Village

Source: Washoe County, 2013, Summary Report for Building and Construction Activity Year 2013, Permits Issued, Washoe County Building and Safety Department.

The recent volatility of industrial and financial activity has impacted social factors in the Study Area. Previously predicted population, employment, and housing numbers were affected by the recession and new statistics are being calculated to determine future plans.

3.2.2.3 Affordable Housing

The U.S. Department of Housing and Urban Development considers housing to be affordable if housing costs (rent or mortgage plus utilities) account for no more than 30 percent of household income. There are several programs to help provide affordable housing. Federal programs, such as Section 8 certificates and vouchers, provide tenant-based subsidies for rents paid by low-income and very low-income (30 percent of

adjusted median income) households. Tenant payments are based on income. Section 8 rental subsidies cover the difference between tenant payments and the unit's market rent.

Local programs, such as the City of Sparks Housing Rehabilitation Program, which is funded through HUD Community Development Block Grant and HOME Investments Partnership Program funds, helps low-income individuals and families with affordable loans for emergency and other repairs.

A primary concern regarding the relocation of residents is the number of households potentially affected, especially as it relates to affordable housing. Finding affordable housing could be a concern for low-income households; however, there is ample vacant housing available in the Study Area. The median sales price in Reno-Sparks from December 2010 to December 2011 alone fell 6.1 percent (CoreLogic, 2011), meaning that homes are becoming more affordable. Section 3.5 *Right-of-Way/Relocation* discusses available of replacement housing. A detailed inventory of available relocation resources and a correlation with the units taken would be conducted and identified by NDOT at the time of final appraisal and acquisition of right-of-way in the project's final relocation plan.

3.2.2.4 Community Resources

Many community facilities serve the residents located in the Study Area. The Washoe County School District covers the Reno/Sparks metropolitan area and has over 100 elementary, middle, high, magnet, and charter schools; and a special education school. There are 15 schools located in the Study Area. Also, the Study Area has two Washoe County police stations, a Truckee Meadows fire station, and two City of Sparks fire stations. Table 3-6 lists these community facilities, and Figure 3-7 shows their locations.

3.2.2.5 Public Transportation

The RTC is responsible for providing public transportation services in Washoe County. The RTC provides the following public transportation services to the residents of Washoe County:

- RTC Ride
- RTC Access
- RTC Sierra Spirit
- TART (Tahoe Area Regional Transit)
- RTC Intercity

RTC had ridership of 7.474 million passengers in 2010. Approximately 27 percent of these trips are for senior citizens or people with disabilities. On an average weekday, more than 23,000 passengers are carried by RTC RIDE. Ridership is even higher in downtown Reno and Sparks, where transfer centers (4th Street Station and Centennial



Plaza) create an effective and convenient service for hotel/casino employees and visitors (Washoe County FY 2011-2015 Regional Transportation Improvement Program, 2011).

The Study Area is generally underserved by transit. The Sun Valley area is served by two bus lines – the 5 and the 15 routes – that operate throughout the day and carry over 800,000 riders per year. Otherwise, bus service does not extend north of McCarran Boulevard in the Study Area.

Table 3-6. Community Facilities in the Study Area

Name	Address	Location	Type
Allen Elementary School	5155 McGruffy Drive	Sun Valley	School
Beasley Elementary School	2100 Canyon Pkwy	Sparks	School
Drake Elementary School	2755 4 th St	Sparks	School
Hug High School	2880 Sutro St	Reno	School
Jan Evans Juvenile Detention Center	650 Ferrari-McLeod Blvd	Reno	Government Building
Juniper Elementary School	225 Queen Way	Sparks	School
Legacy Christian School	6255 Pyramid Way	Sparks	School
Manor Care Health Services	2350 Wingfield Hills Rd	Sparks	Health Care Facility
Maxwell Elementary School	2300 Rock Blvd	Sparks	School
Reed High School	1350 Baring Blvd	Sparks	School
Regional Public Safety Training Center	5190 Spectrum Blvd	Sparks	Government Building
Renown Medical Group	202 Los Altos Pkwy	Sparks	Health Care Facility
Risley Elementary School	1900 Sullivan Ln	Sparks	School
Sepul Veda Elementary	5075 Ion Drive	Sparks	School
Shaw Middle School	600 Eagle Canyon Road	Sparks	School
Spanish Springs Library	7100A Pyramid Way	Washoe County	Library
Sparks Middle School	2275 18 th St	Sparks	School
Sparks Station 2	2900 N Truckee Ln	Sparks	Fire Station
Sparks Station 4	1450 Disc Dr	Sparks	Fire Station
St Mary's Sparks Urgent Medical Center	5975 N. Los Altos Pkwy #100	Sparks	Health Care Facility
Taylor Elementary School	252 Egyptian Drive	Washoe County	School
TMCC High School	7000 Dandini Boulevard	Reno	School
Truckee Meadows Fire Station (#17)	500 Rockwell Boulevard	Washoe County	Fire Station
Washoe County Detention Facility	911 E Parr Blvd	Sparks	Government Building
Washoe County Emergency Management	5195 Spectrum Boulevard	Reno	Police Station
Washoe County Sherriff	911 E. Parr Boulevard	Reno	Police Station
Whitehead Elementary	3570 Waterfall Drive	Sparks	School

Source: Washoe County GIS Data, 2011

1

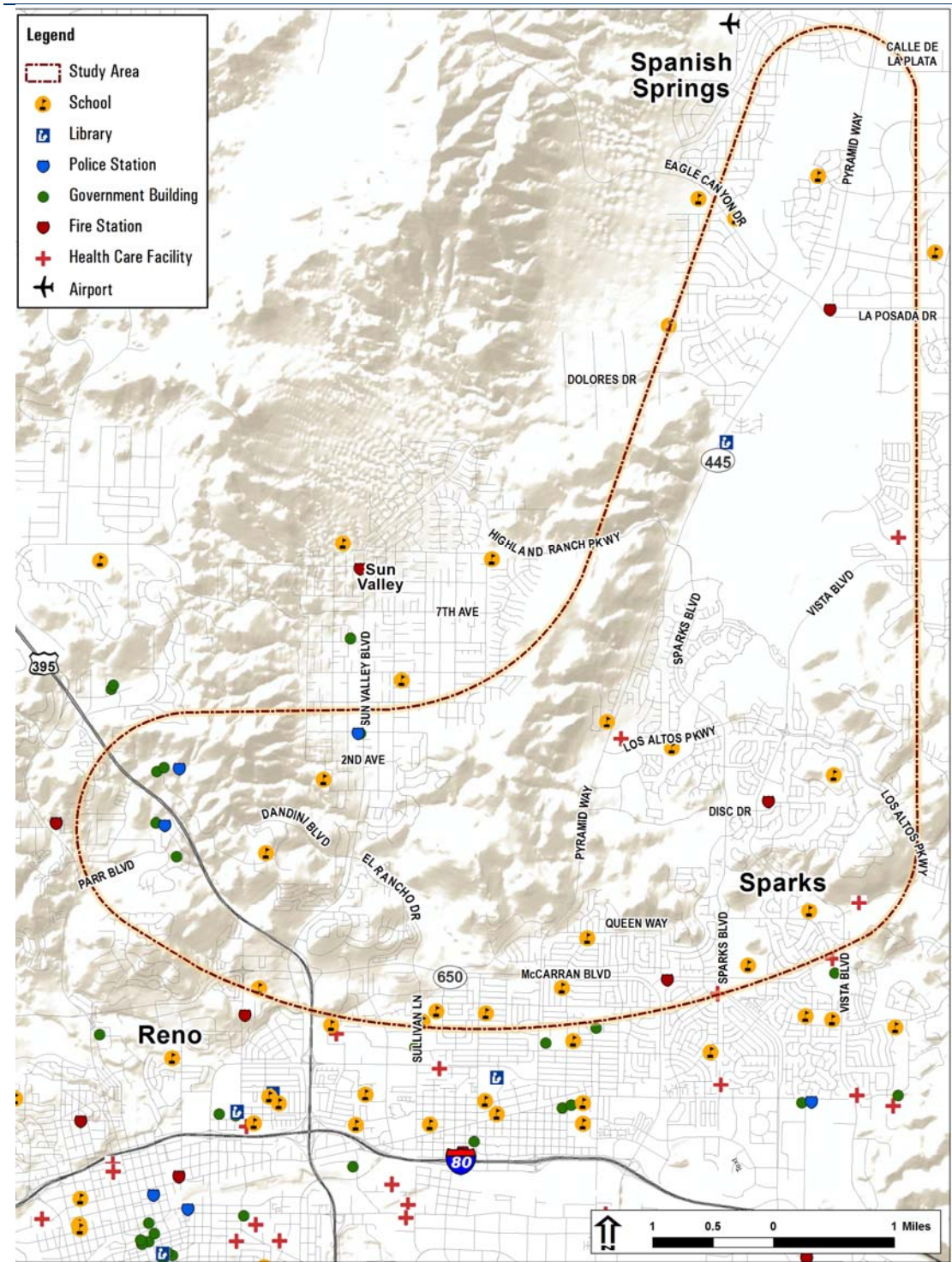


Figure 3-7. Community Facilities in the Study Area

2



The relatively high ridership for the routes serving Sun Valley suggests that many in that community, including low-income and minority populations, depend on transit for their transportation needs.

3.2.3 Social Resources Impacts

This project was proposed in response to the growth that has occurred and is anticipated to occur, as documented in local plans and policies. Washoe County predicts that most of the projected growth will occur where growth has historically taken place and where services and infrastructure are more readily available. Existing communities, as well as future residents and commercial businesses near the project, would benefit from improved access and increased capacity.

The build alternatives would affect different communities to varying degrees, but Sun Valley's social community is the most likely to be affected by the build alternatives. *The Sun Valley Area Plan, 2010*, includes a character statement that describes the community as a "geographically separated valley...that has evolved from a primarily affordable place to live to a diverse community with a growing sense of civic pride." The plan states the community's desire to provide additional employment opportunities and a mixed range of residential opportunities. One of the goals of the plan is have a safe, efficient, and multimodal regional and local transportation system that provides significant connections to the greater region.

3.2.3.1 No-Action Alternative

In the absence of transportation improvements, anticipated population growth would continue to occur within the Study Area. Congestion and mobility along the existing Pyramid Highway corridor and on local streets would worsen over time, increasing travel times and reducing accessibility for local residents and commuters.

The No-Action Alternative would not result in any relocations associated with this project, nor would it create any new physical barriers to community cohesion that would divide, disrupt, or isolate neighborhoods, individuals, or community focal points in the corridor. Therefore, the No-Action Alternative would have no direct effect on community cohesion.

The No-Action Alternative would not affect community services.

3.2.3.2 Build Alternatives

Impacts Common to All Build Alternatives

Each of the build alternatives would require the relocation of businesses and residences (see Section 3.3 *Environmental Justice* and Section 3.5 *Right-of-Way/Relocation* for detailed discussion and figures showing right-of-way impacts). Residential displacements would

occur for houses located on the periphery of residential areas along Pyramid Highway and would occur within the Sun Valley neighborhood areas. Each of the four build alternatives would provide a connection to US 395 through this area, providing a wider roadway that accommodates higher traffic volumes. While resulting in localized adverse impacts, the US 395 Connector would improve access and mobility to and from the Sun Valley community as a whole.

All build alternatives would impact Sun Villa Estates, a mobile home community located along US 395. This mobile home community would remain intact, with the exception of the potential relocation of four mobile homes, which would occur on the periphery of the neighborhood closest to the US 395 widening. A proposed retaining wall would change the views for remaining residents from that of a sparsely vegetated slope up to US 395 to that of a retaining wall, but no community isolation would result. Refer to Figure 3-48 for examples of retaining wall designs.

Along the Pyramid Highway corridor in Spanish Springs, impacts would occur to the Springwood, Desert Spring, and Tierra Del Sol subdivisions. The highway widening and interchange improvements would require some relocations and traffic noise impacts to houses located along the outer edges of the neighborhoods closest to Pyramid Highway.

Along Pyramid Highway, interchanges at major arterials would replace the current three-way or four-way intersections. Interchanges provide a grade-separated junction between freeways and arterials, and provide a crossing of the freeway. While improving safety and mobility, access to one-way frontage roads would result in out-of-direction travel for neighborhoods turning left on or off the highway. Out-of-direction travel would occur because these trips would need to travel on the one-way frontage road in the opposite direction of their destination point and turn around at the next interchange. See Appendix C for graphics showing access changes and road closures.

Community Facilities

None of the four build alternatives would require the relocation of parks, police, or fire departments. However, the build alternatives would affect several community facilities, as described below:

- Acquisition of portions of the County Sheriff's Office property and parking as a result of the widening of Parr Boulevard and US 395 interchange modifications.
- Property impacts to the campus of DRI and TMCC.

Although not requiring any building relocations, the US 395 Connector would affect improvements identified in a master plan for the DRI campus. Improvements include two planned building locations north of Dandini Boulevard. These buildings would house private research and/or development entities and are somewhat removed from the core of the DRI.



A new hospital is being considered for the corner of Sparks Boulevard and Pyramid Highway that would serve Spanish Springs and Sun Valley residents. Because there would be an interchange near the proposed hospital, the build alternatives would improve access to the hospital and emergency services for Study Area residents, including Sun Valley residents, via the US 395 Connector.

All build alternatives would result in the same impacts to the Lazy 5 Regional Park and Spanish Springs Community Library. All build alternatives would reconfigure the existing access from Pyramid Highway to meet safety requirements and current design standards as a result of Pyramid Highway improvements. This would include closing the existing driveway access and providing access south of the library via connection to a new roadway planned through the future development to be located south of the library. Also, approximately 12 library parking spaces near Pyramid Highway would be permanently removed. None of the build alternatives would directly impact the park areas of the Lazy 5 Regional Park.

All build alternatives would provide regional bus service along Pyramid Highway to serve corridor demand consistent with the service standards of RTC, including extending bus transit service and Park and Ride facilities, described further in Section 2.4.3 *Build Alternatives – Common Elements*. The build alternatives would be consistent with the *Sun Valley Area Plan* vision by adding transit opportunities and providing connections to a regional facility.

Alternative 1

Sun Valley

Alternative 1 would use the Rampion Way crossing over Sun Valley Boulevard. It would require acquisition of more single-family homes, including mobile homes, compared to Alternatives 2 and 3. Alternative 1 would affect four neighborhoods that bound the current intersection of Rampion Way and Sun Valley Boulevard: Mobile Glen Estates, Ross Park Estates, Sun Valley Estates, and High Country. It would impact the periphery of the first three but would somewhat divide the remaining homes along Sugar Hill Drive and Lofty View Drive in the High Country neighborhood. The US 395 Connector, therefore, would create a barrier between houses in the High Country neighborhood, thereby potentially affecting social relationships between neighbors and changing existing patterns of interaction. Since certain people in the neighborhood would be separated from others, some community isolation would result. The other three neighborhoods would not experience the same type of barrier effect and be left relatively intact. Therefore, these neighborhoods would not experience the same effects to relationships to their neighbors as the High Country neighborhood.

Currently, Sun Valley Boulevard serves as the primary transportation route for Sun Valley, providing access to schools, libraries, emergency services, and other community

facilities. Therefore, changes in access to Sun Valley Boulevard would affect access to these community facilities. These changes would include:

- Closing Rampion Way west of Leon Drive and south of Leopard Lily Drive with a cul-de-sac, altering travel patterns for residents of High County neighborhood by requiring them to travel north along Leon Drive to 1st Avenue to access Sun Valley Boulevard. Similarly, eastern residents of the Sun Valley Estates would need to travel north to access 1st Avenue to enter or leave their neighborhood.
- Adding a cul-de-sac along Wayne Drive requiring its residents in Mobile Glen Estates to use West or East Leonesio Drive to access Sun Valley Boulevard; instead of via Rampion Way.

Alternative 1 would affect parking and access to the Legacy Christian School and the Summit Christian Schools, requiring reconfiguration of the properties that would allow for the continued use of these facilities (see Appendix C).

Improved mobility from the improvements would offset any out-of-direction travel from these access and circulation changes, generally improving access to community facilities. Further, the full system interchange on Sun Valley Boulevard would allow Sun Valley residents to easily access the US 395 Connector, greatly improving access and reducing travel times to such destinations as US 395, the downtown Reno employment center, and shopping along the Pyramid Corridor.

Pyramid Corridor

Alternative 1 would displace residences located on the periphery of residential areas along Pyramid Highway. This would include impacts to the mobile home communities of Oasis Mobile Estates and Blue Gem Estates located along Pyramid Highway and require potential relocation of approximately nine residential units. More relocations would potentially occur in the Spring Ridge and Spring Creek subdivisions—a total of 68 potential relocations. These communities would remain intact, with the exception of the necessary relocations, which would occur on the periphery of the property closest to Pyramid Highway widening. Access to Pyramid Highway from these neighborhoods would not change.

Alternative 2

Sun Valley

Alternative 2, which follows the southern alignment through Sun Valley, would acquire more single-family homes and mobile homes than Alternative 1. Alternative 2 would avoid three of the four neighborhoods (Ross Park Estates, Sun Valley Estates, and High Country) affected under Alternative 1, but would more severely impact Mobile Glen Estates and the Sierra Pointe apartment complex in Sun Valley. The remaining homes in the Leonesio Drive area of Mobile Glen Estates would be separated with cul-de-sacs,



dividing the northern and southern portions of the neighborhood. The US 395 Connector would create a barrier between houses in the same neighborhood, thereby potentially affecting relationships with neighbors and changing the patterns of interaction within that neighborhood. Certain people in this neighborhood would be separated from others, resulting in some community isolation. The remaining neighborhoods would be left intact and would, therefore, not experience the same effects to community cohesion.

In Sun Valley, Alternative 2 would not result in the same extent of circulation changes as Alternative 1, but Mobile Glen Estates would experience some access changes.

Pyramid Corridor

Alternative 2 would include greater impacts to the Pyramid Highway corridor north of Disc Drive. Therefore, the Oasis Mobile Estates, Blue Gem Estates, Spring Ridge, and Spring Creek neighborhoods would each be impacted more than under Alternative 1, requiring the potential relocation of approximately 132 residential units and the reconstruction of driveway accesses. These communities would remain intact, with the exception of the necessary relocations of mobile homes and houses, which would occur on the periphery of the neighborhoods closest to the roadway widening. However, the relocation of such a large number of residences, particularly from the Spring Creek subdivision where 71 relocations would potentially occur, would represent a significant community disruption. Existing social relationships within the neighborhood would suffer, and community cohesion would be adversely affected.

For these communities, access would change to a one-way northbound frontage road, instead of full access to Pyramid Highway. This would require residents to travel on the frontage road to Golden View Drive to access Pyramid Highway traveling northbound. Or, traffic would cross Pyramid Highway and turn south onto a one-way frontage road to Disc Drive to access Pyramid Highway southbound.

Alternative 2 would relocate the Legacy Christian School, a private school located on the west side of Pyramid Highway just north of Los Altos Parkway. Parking at the Summit Christian Church would also be impacted; however, access to the church would remain from Golden View Drive.

Alternative 3 would follow the southern alignment through Sun Valley. Although the US 395 Connector interchange would be located west of Sun Valley Boulevard in a large area of undeveloped land, impacts to the four neighborhoods would be similar to those under Alternative 2. Similar to Alternative 2, Alternative 3 would impact Sierra Pointe Apartments, and the Leonesio Drive neighborhood would be divided in half, leaving the northern portion and southern portion separated with cul-de-sacs. The US 395 Connector would create a barrier between houses in the same neighborhood, thereby potentially affecting relationships with neighbors. Access and circulation changes would be the same as those described under Alternative 2.

The impact to the mobile home communities of Oasis Mobile Estates and Blue Gem Estates would be the same as Alternative 1. Alternative 3 would not change Blue Gem Creek access.

Alternative 3

Alternative 3 would result in similar impacts as Alternative 1 to the Christian Legacy School and the Summit Christian Church. In addition, the US 395 Connector interchange west of Sun Valley would partially impact Lois Allen Elementary School located off of West 1st Avenue, although access to the school would improve. The partial impacts to the school would be limited to the southern edge of the parcel. While retaining walls would likely minimize nearly all impacts to the school property, some alterations to the southern edge of the playground and to the driveway access would be required. Alterations to the playground would include re-grading the existing ground to accommodate construction of the retaining wall. Alterations to the driveway would include reconstructing the approach to meet the new roadway elevation and width, and constructing sidewalks and pedestrian ramps near this driveway matching the roadway improvements.

Alternative 4

Alternative 4 would follow the northern alignment through Sun Valley and include an interchange west of Sun Valley Boulevard. This alternative would acquire the most single-family homes of all build alternatives, including mobile homes. Similar to Alternative 3, Alternative 4 would impact a larger area of undeveloped land because of the interchange location west of Sun Valley. Alternative 4 would have similar impacts to the four neighborhoods (Mobile Glen Estates, Ross Park Estates, Sun Valley Estates, and High Country) that bound the current intersection of Rampion Way and Sun Valley Boulevard as Alternative 1.

Rampion Way would be closed west of Leon Drive and would be closed with a cul-de-sac south of Leopard Lily Drive, resulting in the same access changes described under Alternative 1. Blue Gem Creek's access would change to a one-way northbound frontage road, similar to Alternative 2.

Impacts to community facilities from Alternative 4 would be the same as Alternative 1. Also, as with Alternative 3, Alternative 4 would partially impact Lois Allen Elementary School, although access to the school would improve.

Impacts Summary

Adverse effects to community cohesion would occur in the High Country neighborhood under Alternatives 1 and 4 and the Mobile Glen Estates neighborhood under Alternatives 2 and 3. In these areas, the US 395 Connector would create a barrier between houses in the same neighborhood, thereby potentially affecting relationships with neighbors in some communities. This could reduce or change patterns of



1 interaction between cohesive neighborhood groups, resulting in some community
2 isolation.

3
4 Access changes would result in some out-of-direction travel for emergency services
5 accessing neighborhoods. However, the mobility improvements provided by the build
6 alternatives are expected to offset any additional travel time added by this out-of-
7 direction travel.

8 **3.2.4 Social Resources Mitigation**

9 The Lead Agencies will seek to mitigate social impacts from the build alternatives.
10 Relocation activities will be conducted in accordance with the Uniform Relocation
11 Assistance and Real Property Acquisition Policies Act of 1970, as amended, and with
12 NDOT's *Right-of-Way Manual* (2011). More specific discussion on relocations is located in
13 Section 3.5 *Right-of-Way/Relocation*.

14
15 Also, measures to mitigate for impacts to the Sun Valley and other neighborhoods
16 discussed above are included in Section 3.3.6 *Environmental Justice Mitigation*.

17 **3.3 ENVIRONMENTAL JUSTICE**

18 This section describes the Environmental Justice (EJ) communities identified in the
19 Study Area as part of this Study and identifies potential beneficial and adverse effects
20 resulting from the No-Action Alternative and the build alternatives.

21 **3.3.1 Regulatory Background**

22 Environmental Justice was first identified as a national policy in 1994 when President
23 Clinton issued E.O. 12898, Federal Actions to Address Environmental Justice in Minority
24 Populations and Low-Income Populations and required federal agencies to develop a
25 strategy for incorporating EJ into the National Environmental Policy Act (NEPA)
26 evaluation process. The purpose of E.O. 12898 is to ensure that minority and low-income
27 communities do not receive disproportionately high and adverse human health or
28 environmental impacts as a result of federal actions.

29
30 In the *Washoe County RTC Regional Transportation Plan* (2008), the RTC analyzes and
31 considers the EJ of its overall program of projects and decision-making processes. This
32 analysis is to ensure that disadvantaged groups receive a reasonable amount of the
33 benefit from the overall program of projects and services while not suffering negative
34 impacts. This project was part of that regional EJ analysis. The analysis indicated that
35 "planned future activities will continue to treat disadvantaged groups fairly."

3.3.2 Methods

3.3.2.1 Census Data Analysis

The identification of minority and low-income populations began with the analysis of 2010 Census data at the block level. Minority populations comprise ethnic and/or racial minorities. As defined in FHWA Order 6640.23A, a minority is a person who is Black, Hispanic, Asian American, or American Indian or Alaskan Native. The 2010 Census data does not list Hispanic as a racial category; instead, Hispanic or Latino heritage is considered an ethnicity. Therefore, a person of Hispanic or Latino origin can identify with any racial group. To determine minority populations within the Study Area, the total White, Non-Hispanic population of a geographic area (i.e., US census block), is subtracted from the total population to generate the total minority population. The percentage of minorities was then compared to the Washoe County's average. This analysis considered any blocks with a higher percentage of minorities than the County average as a potential minority population

FHWA Order 6640.23A defines low-income as "A person whose median household income is at or below the Department of Health and Human Services (HHS) poverty guidelines." HHS thresholds are developed for the 48 contiguous states and the District of Columbia by household size up to an eight-person household. Using the county average household size data, the HHS thresholds were adjusted to reflect the average household size for Washoe County. For purposes of privacy, the Census block group is the most detailed level of data that displays income information. Any Census block group within the Study Area that has a greater percent of low-income households that fall below the set threshold was considered as potential low-income concern in this analysis.

3.3.2.2 Additional Data Collection

Data from the 2010 Census was complemented by information from local sources to identify and locate low-income and minority populations in the Study Area. These local sources included city planners, school district officials, housing authorities, non-profit organizations, and community centers. Based on their familiarity with the area, they were able to provide additional information to more accurately identify EJ communities within the Study Area.

The Study team conducted specialized outreach with the EJ communities to identify issues, concerns, and potential measures to mitigate for adverse impacts. This outreach also helped to make sure affected EJ populations had access to project information and input into the decision-making process. Section 3.3.4 *Specialized Outreach* provides details on this outreach.

As the number of project alternatives were reduced and became better defined, data collection efforts focused on EJ areas that the remaining alternatives might affect. To that end, a field visit was conducted in June 2009 to observe neighborhoods located near



potential alternatives that may meet EJ criteria. Several managers of mobile home parks were contacted to discuss the project, their knowledge of the study and involvement to date, and ways to participate.

The information derived from these resources helped verify and expand upon the populations identified in the 2010 Census. These local contacts, based on their own familiarity with the area, provided additional information to more accurately identify EJ communities within the Study Area.

3.3.3 Existing Conditions

3.3.3.1 *Minority Populations*

Washoe County has a minority population of 34 percent (2010 Census). Most minorities in the Study Area are classified as Latino by the 2010 Census. Within the Study Area, most Census blocks had similar or lower minority population percentages than Washoe County. These populations are shown in Figure 3-8. Of 1,101 Census blocks located partially or wholly within the Study Area, 322 have minority populations greater than Washoe County. Many of these blocks are located near the intersection of Pyramid Highway and Highlands Ranch Parkway in the north portion of the Study Area, and around Sun Valley Boulevard in the west portion of the Study Area.

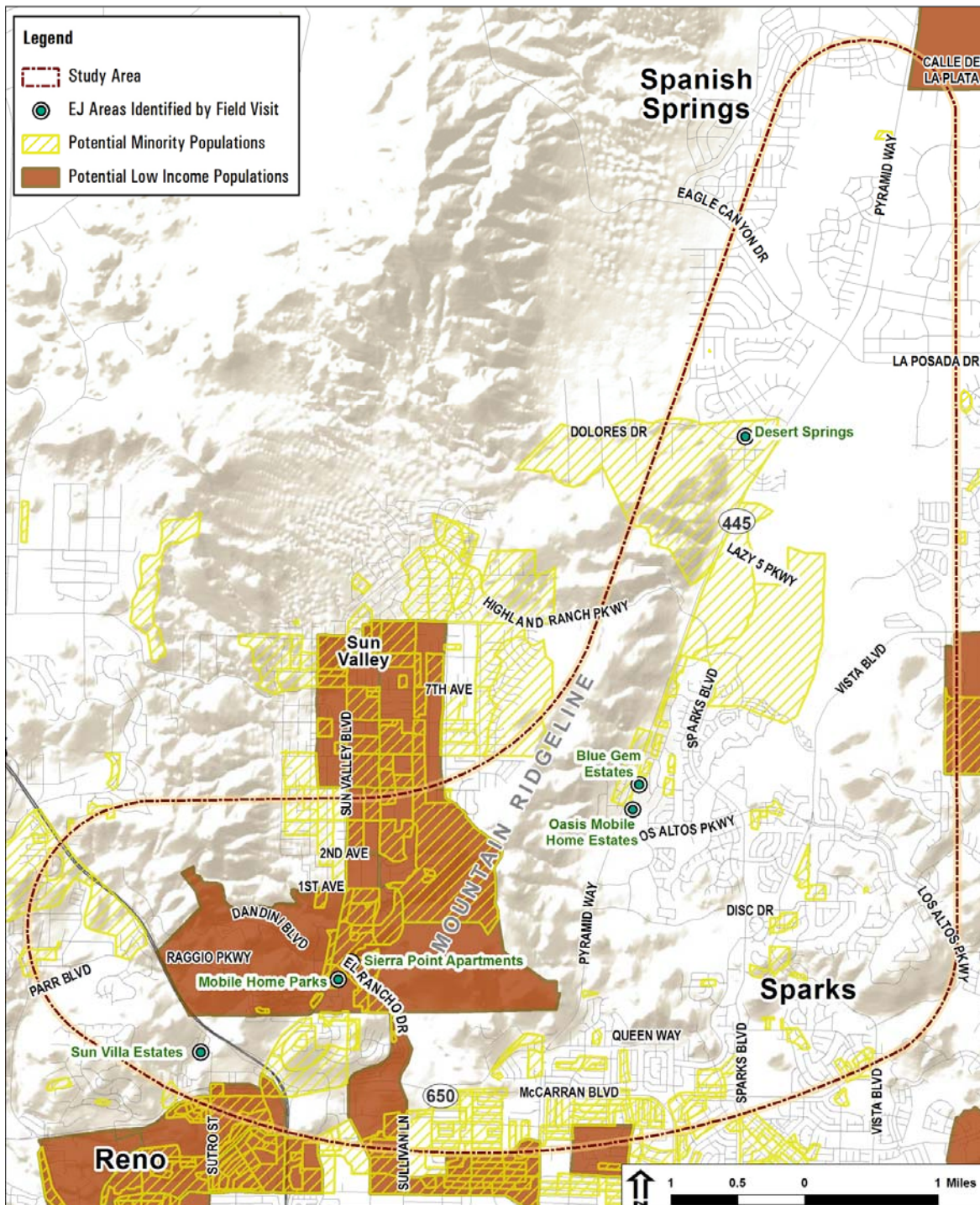
Using the methods discussed above, the Study team identified specific minority areas of concern, shown in Figure 3-8. Along Pyramid Highway, these include Blue Gem Estates and Oasis Mobile Estates and in Sun Valley, Sierra Point Apartments, several mobile home parks, and businesses along Sun Valley Boulevard.

3.3.3.2 *Low-Income Populations*

The average household size in Washoe County in year 2010 was 2.55 people. Applying this to 2012 HHS-identified poverty thresholds results in a poverty threshold of \$17,308 for Washoe County. Because census income statistics are divided into increments of \$5,000, the income threshold of \$20,000 is used in order to be more inclusive. In Washoe County, 15.2 percent of households fall below this threshold. Of 48 Census block groups located either partially or wholly within the Study Area, 19 block groups have low-income populations greater than the county, which is indicated in Figure 3-8.

Based on the field investigation and local contacts, many of the same neighborhoods identified as minority also would qualify as low income.

In addition to the specific neighborhoods mentioned in Section 3.3.3.1 *Minority Populations*, this EJ analysis assumes that Ross Park Estates, Mobile Glen Estates, Sun Valley Estates, High County, and Sun Villa predominately consist of low-income populations, minority populations, or both.



Source: U.S. Census Bureau, 2010 Census.

Figure 3-8. Minority and Low-Income Populations in the Study Area

1
2



3.3.4 Specialized Outreach

The Study team conducted specialized outreach to target EJ communities and solicit their input on the study. This involved a combination of outreach efforts such as open houses, specialized meeting noticing, and community briefings. Refer to *Pyramid Highway and US 395 Connection: Social Considerations, Right-of-Way/Relocation Impacts, and Environmental Justice Technical Report* (RTC, 2012) for details.

General themes or categories of comments received from this outreach include the following:

- Impacts to Sun Valley communities from displacements.
- Relocation reimbursements, including concerns about reimbursements for homes with negative equity.
- Changes in access and circulation.
- Bicycle and pedestrian amenities.
- Visual and traffic noise impacts.
- Need for bus-turnouts.
- Increased traffic on Sun Valley Boulevard.
- Some preference for southern alignment across Sun Valley.

3.3.5 Environmental Justice Impacts

The identification of potential disproportionately high and adverse impacts to low-income and minority populations begins with the identification of adverse environmental impacts for other resources and the mitigation proposed to address these impacts. Both the severity of adverse impacts and the effectiveness of proposed mitigation have been assessed as they specifically relate to minority and low-income communities. The EJ analysis seeks to identify any high and adverse impacts that disproportionately affect minority and/or low-income communities.

A disproportionately high and adverse effect is defined by FHWA as one that is:

- Predominantly borne by a minority and/or low-income population, or
- Suffered by the minority and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that would be suffered by the non-minority/non low-income population.

3.3.5.1 *No-Action Alternative*

Under the No-Action Alternative, traffic congestion and safety hazards would worsen in the Study Area, hindering access to housing, businesses, and community facilities and services. While there would be no displacement of minority or low-income residents, businesses, or employees, EJ communities would be indirectly impacted by increased traffic and congestion.

3.3.5.2 *Build Alternatives*

Identifying disproportionately high and adverse effects requires determining whether the impact is appreciably more severe or greater in magnitude on the EJ population than the high and adverse effect suffered by the non-minority/non-low-income population. All of the build alternatives have the potential to have high and adverse impacts on these populations.

EJ was considered early in the alternatives screening process. As mentioned above, the alignments were chosen in part because they crossed the potential EJ populations in the narrowest location in Sun Valley, thereby minimizing impact. For example, preliminary alternatives included major widening and improvements along Wedekind Road, McCarran Boulevard, Pyramid Way south of McCarran Boulevard, and Rock Boulevard. These alternatives were eliminated largely because of impacts to the communities surrounding these corridors, many of which are minority and low-income populations, as Figure 3-8 shows.

Determining whether impacts are high and adverse involves considering contributing factors, such as the levels of community disruption and fragmentation, relocations and displacements, visual quality impacts, traffic and safety impacts, and impacts to community facilities such as schools or parks.

Part of assessing disproportionate effects includes considering the tradeoffs between acquiring more low-income and minority properties and relocating to a new area, versus acquiring fewer and potentially leaving a community divided.

Impacts Common to All Build Alternatives

Residential displacements would occur on the periphery of EJ residential areas along Pyramid Highway and within the Sun Valley neighborhood areas. Among these are Oasis Mobile Estates and Blue Gem Estates – two mobile home communities along Pyramid Highway that would be affected by the build alternatives (see Figure 3-11 and Figure 3-12). These communities would remain intact, with the exception of the necessary relocations of mobile homes; those homes closest to the roadway would be relocated. Specific impacts to Oasis Mobile Estates and Blue Gem Estates vary by alternative and therefore are discussed below.

During construction, residents of the Study Area would experience short-term impacts, over several months such as traffic noise, vibration, dust, and temporary street restrictions, and closures. These impacts likely would be greater for minorities and low-income households than those experienced by non-EJ populations, due to proximity of



EJ neighborhoods to proposed construction activities. However, mitigation measures would help avoid and minimize these impacts.

Air quality is expected to improve in the future because of control programs, such as the reformulated gasoline program, established by the EPA to control criteria pollutants. However, the build alternatives would likely increase emissions associated with increases in vehicle miles traveled (VMT). The *Pyramid Highway and US 395 Connector Air Quality Technical Report* (RTC, 2012) has additional details. The various impacts and benefits would be experienced by the general population, including minority and low-income residents. Impacts to EJ populations would be similar to those experienced by the general population.

In preparing the Draft EIS, the Study team has assessed traffic noise and visual impacts from the build alternatives. The build alternatives would increase traffic noise levels to several EJ communities. Also, new visual elements introduced by the project would affect views to and from these communities. Refer to the *Pyramid Highway and US 395 Connection Traffic Noise Technical Report* (RTC, 2012), Section 3.9 *Traffic Noise and Vibration*, and Section 3.16 *Visual Quality* for details on traffic noise and visual impacts. Except for Sun Villa Estates, traffic noise and visual impacts differ by alternative and therefore are discussed below.

Sun Villa Estates

All build alternatives would affect the Sun Villa Estates mobile home community located along the southwest side of US 395 (see Figure 3-8), requiring potential relocation of four manufactured homes. A retaining wall would be constructed along US 395 in this area, changing the current views from that development of a sparsely vegetated slope up to the highway to that of a retaining wall. Also, each build alternative would increase traffic noise levels in this neighborhood to a projected 78 dBA, an increase of 10 and 7 dBA from existing and No-Action Alternative traffic noise levels, respectively. Traffic noise impacts were analyzed in the *Pyramid Highway and US 395 Connection Traffic Noise Technical Report* (RTC 2012) and presented in Section 3.9, *Traffic Noise*.

Benefits

Benefits from the build alternatives would help offset adverse impacts to EJ populations. These benefits would accrue to both EJ and non-EJ communities.

All build alternatives would reduce congestion, increase mobility, and improve safety in the Study Area by providing a connection from Pyramid Highway to US 395. Along with the general population, EJ populations would benefit from the improved access provided by these improvements.

Reducing congestion, improving safety, and adding lanes would greatly improve the efficiency and safety of Pyramid Highway for all users in the Study Area. Constructing

the US 395 Connector would allow better east-west mobility for all users within the Study Area.

As noted in Section 3.3.4 *Specialized Outreach*, several Sun Valley residents at public workshops voiced concern regarding project effects to Sun Valley Boulevard congestion. During the alternatives screening process, the Study team evaluated several scenarios including:

- No Action.
- Improving Pyramid Highway to a six-lane arterial north of McCarran Boulevard but without the US 395 Connector.
- Constructing the US 395 Connector as a six-lane arterial highway and improving Pyramid Highway to a six-lane arterial north of McCarran Boulevard.
- Constructing the US 395 Connector as a six-lane freeway and improving Pyramid Highway to a six-lane freeway north of McCarran Boulevard (all build alternatives).

This analysis showed that only the last scenario (build alternatives) provided congestion relief along Sun Valley Boulevard as it allowed residents in and near Sun Valley improved access to the Washoe County freeway system. In the build alternative scenarios, considerable relief was indicated south of the new US 395 Connector, improving travel speeds along south Sun Valley Boulevard and Clear Acre Lane. In all the other scenarios, Sun Valley Boulevard, and Clear Acre Lane remained congested with increased travel times and reduced travel speeds from Sun Valley to the proposed Sutro Interchange.

All build alternatives would provide regional bus service along Pyramid Highway to serve corridor demand consistent with the service standards of RTC, including extending bus transit service and Park and Ride facilities. Since low-income and minority populations often use transit more than non-EJ populations, these improvements likely would benefit the EJ communities in the Study Area to a greater degree, particularly the EJ communities located along Pyramid Highway (i.e., Oasis Estates and Blue Gem Mobile Home Parks). The reduced congestion on Sun Valley Boulevard would ease congestion for the local buses on Sun Valley Boulevard. Local transit routes would be reassessed in coordination with RTC Transit Planning to best serve Sun Valley and the northern Reno/Sparks area.

All build alternatives would result in economic benefits through increased employment, including short-term, construction-related employment, as well as long-term employment resulting from economic growth. In addition to direct employment from temporary construction jobs, public investment in infrastructure supports employment in supporting industries, such as those who produce steel, concrete, etc., referred to as indirect employment. Further, induced employment would result from the consumer



spending that results from the wages paid to workers directly or indirectly employed through the infrastructure investment. While these employment benefits would accrue to both EJ and non-EJ populations, the type of employment opportunities described above could be expected to disproportionately benefit EJ populations.

In a larger sense, studies show that investment in transportation infrastructure can stimulate local economies, both in the short- and long-term. Similarly, studies across the United States conducted over the last 30 years have consistently shown that transportation improvements positively affect the value of nearby land (Huang, 1994). Highway construction may have a localized adverse impact on some properties but in the aggregate property values tend to rise with highway development (Carey, 2001). Therefore, the transportation improvements and improved access provided by the build alternatives would boost potential for economic growth and property appreciation in the Sun Valley and Pyramid Highway corridor areas.

3.3.5.3 Alternative 1

Sun Valley

The US 395 Connector under Alternative 1 would impact minority and low-income communities in Sun Valley. Alternative 1 would acquire less single-family homes, including mobile homes, than any other build alternative. Alternative 1 would impact the periphery of four neighborhoods, with the High Country neighborhood incurring the greatest impacts, as described in Section 3.2.3 *Social Resources Impacts*). The other three neighborhoods are left relatively intact but will experience relocations and traffic noise impacts.

Alternative 1 would include road closures as described below and in Section 3.2.3.2. These changes in access to Sun Valley Boulevard would affect access to schools, libraries, emergency services, and other community facilities for those who currently use Sun Valley Boulevard to access such facilities.

- Closing Rampion Way west of Leon Drive and south of Leopard Lily Drive with a cul-de-sac, altering travel patterns for residents of High Country neighborhood by requiring them to travel north along Leon Drive to 1st Avenue to access Sun Valley Boulevard. Similarly, eastern residents of the Sun Valley Estates would need to travel north to access 1st Avenue to enter or leave their neighborhood.
- Adding a cul-de-sac along Wayne Drive requiring its residents in Mobile Glen Estates to use West or East Leonesio Drive to access Sun Valley Boulevard; instead of via Rampion Way.

Figure 3-9 and Figure 3-10 show potential relocation and traffic noise impacts to Sun Valley neighborhoods from the four build alternatives. Table 3-7 shows potential relocations in different EJ neighborhoods.

Table 3-7. Environmental Justice Residential Relocations by Neighborhood

Community	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Sun Villa	4	4	4	4
Mobile Glen	14	38	33	12
Ross Park	17	0	0	17
High Country	41	0	0	38
Sun Valley Estates	22	0	0	19
Sierra Pointe	0	120*	120*	0
Oasis Mobile Estates	10	18	10	18
Blue Gem Estates	8	12	8	12
Total	116	192	175	120

*Approximately 120 households relocated as a result of impacts to two parcels.

Note: Sun Villa Estates impacts not shown on Figure 3-9 and Figure 3-10 ; refer to Figure 3-8 for location of this development.

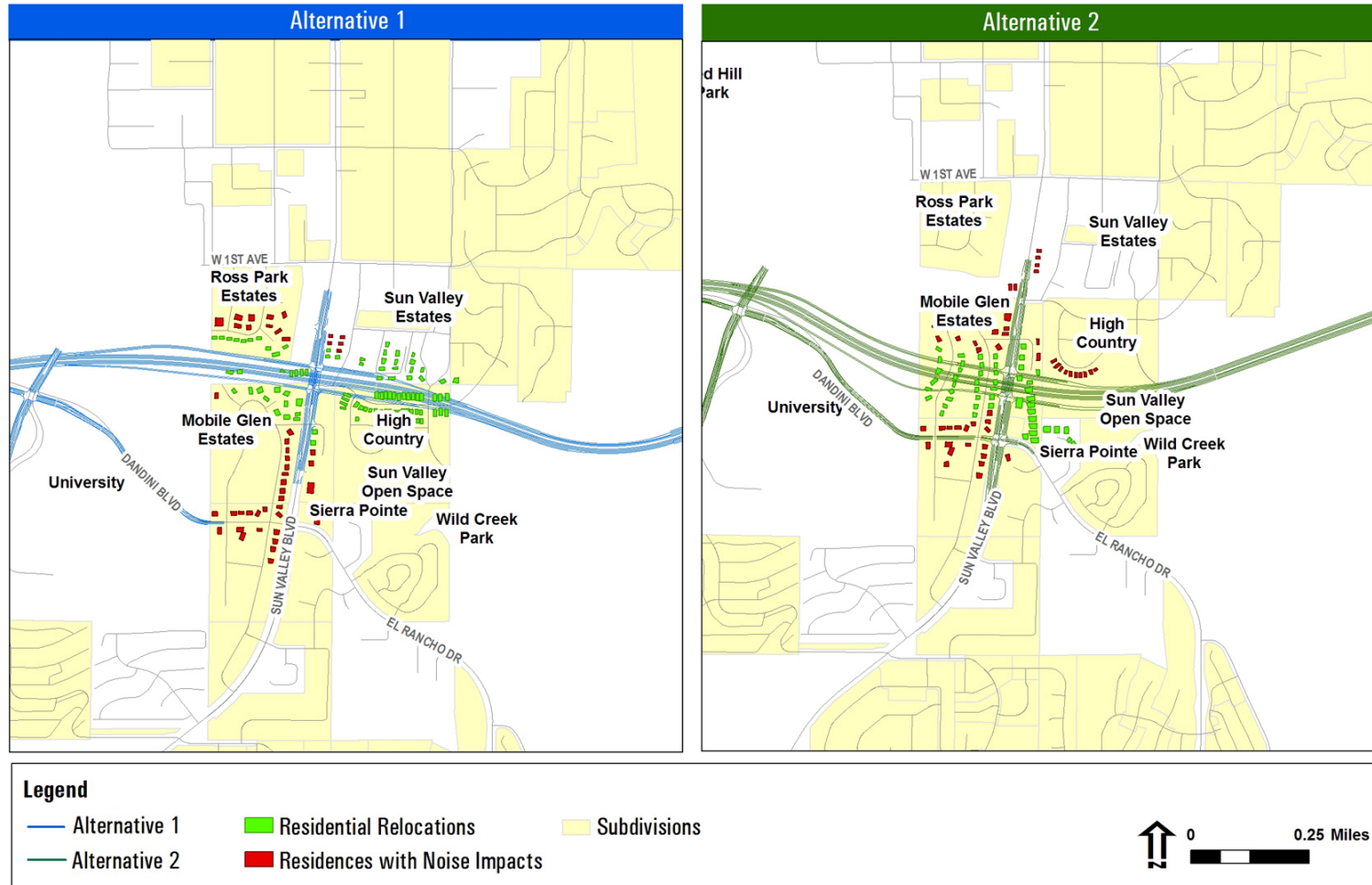
In addition to the social effects described in Section 3.2.3, *Social Resources Impacts*, Alternative 1 would displace an estimated 41 residences in High Country, 22 in Sun Valley Estates, and fewer residences in other neighborhoods. Traffic noise impacts vary but are highest in Mobile Glen Estates, where one residence would experience a 15 dBA increase over existing traffic noise levels. To mitigate traffic noise increases in Sun Valley neighborhoods, several traffic noise barriers were considered but were not recommended because they would exceed NDOT's cost criterion.

Visual impacts to these Sun Valley neighborhoods include:

- Ross Park Estates – most residents/ views of improvements would be screened by the existing area topography south of this development.
- Mobile Glen Estates – the realigned Dandini Boulevard would be visible as it turns north and travels up the hillside to the west.
- High Country – due to topography, the US 395 Connector would only be visible where it crosses Sun Valley Boulevard; the freeway entry and exits would not be visible. In general, Alternative 1 would have lower visual impacts to this neighborhood than the south of Rampion Way crossing associated with Alternatives 2 and 3.



1

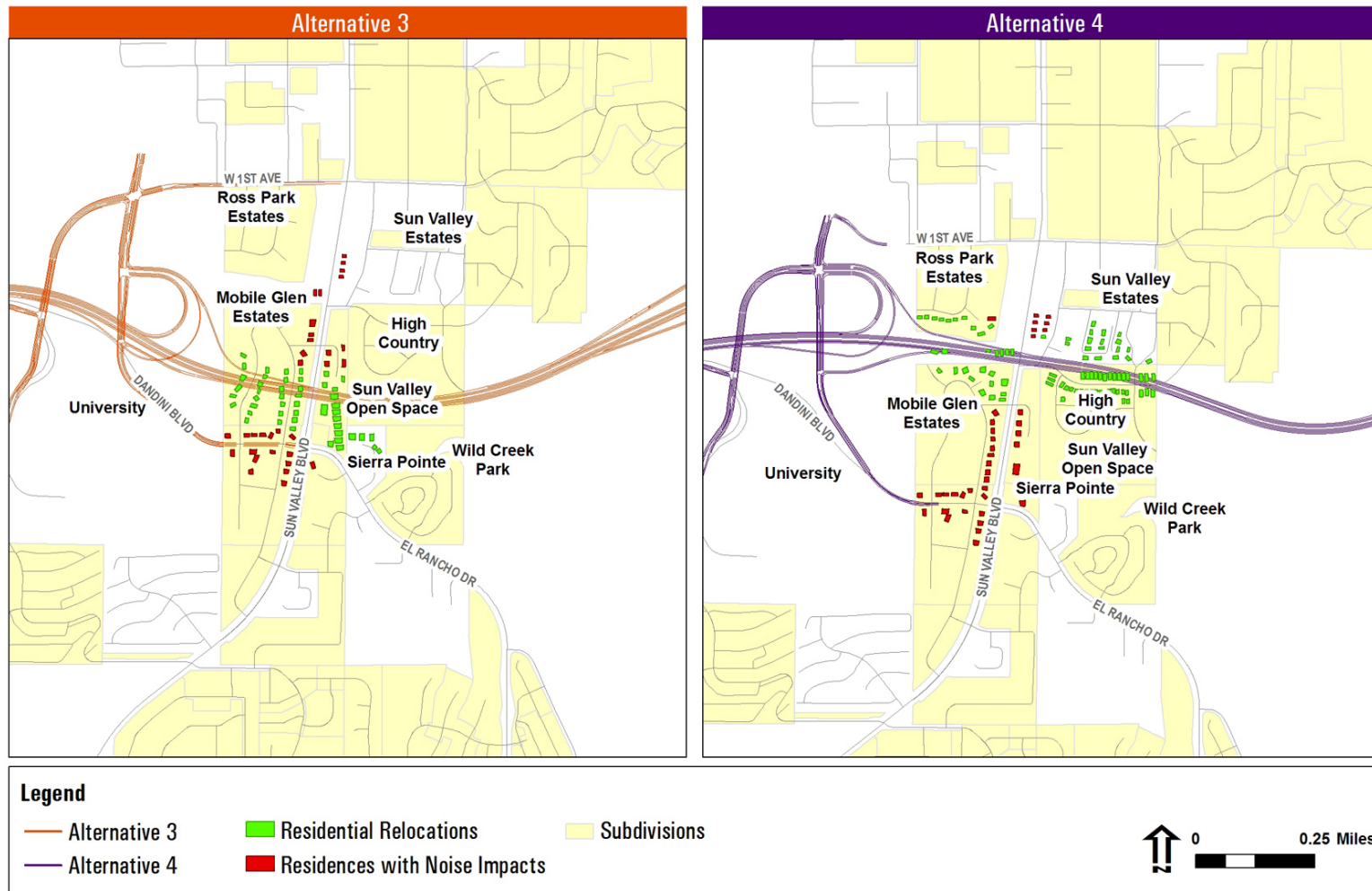


Note: Sun Villa Estates impacts not shown; refer to Figure 3-8 for location of this development.

Figure 3-9. Sun Valley Neighborhood Impacts – Alternatives 1 and 2

2

1



Note: Sun Villa Estates impacts not shown; refer to Figure 3-8 for location of this development.

Figure 3-10. Sun Valley Neighborhood Impacts – Alternatives 3 and 4

2



Pyramid Highway widening from four to six lanes between Disc Drive and Los Altos Parkway would also affect low-income and minority populations. Figure 3-11 and Figure 3-12 show that Alternative 1 would impact the mobile home parks of Oasis Mobile Estates and Blue Gem Estates and require potential relocation of approximately 18 residential units. Residents in the Blue Gem Estates and Oasis Mobile Home Estates would experience neither traffic noise impacts nor visual impacts.

3.3.5.4 Alternative 2

The US 395 Connector under Alternative 2 would cross south of Alternative 1 where fewer homes are located, but still would impact minority and low-income neighborhoods of Sun Valley. Alternative 2 would displace more single-family homes and mobile homes in Sun Valley than Alternative 1. It would avoid three of the four neighborhoods affected under Alternative 1, but have greater impacts to Mobile Glen Estates, requiring an estimated 38 potential relocations. The remaining homes in the Leonesio Drive area of Mobile Glen Estates would be separated with cul-de-sacs, dividing the northern and southern portions of the neighborhood. The US 395 Connector would create a barrier between houses in the same neighborhood, thereby potentially affecting relationships with neighbors and changing the patterns of interaction within that neighborhood. Certain people in this neighborhood would be separated from others, resulting in some community isolation. The remaining neighborhoods would be left intact and would, therefore, not experience the same effects to community cohesion. In the Sierra Point Apartments along Sun Valley Boulevard, several units, comprising 120 apartments, would be impacted under Alternative 2. The apartment manager indicated in February 2012 that vacancies exist in unaffected units that could accommodate some of these relocations.

In Sun Valley, Alternative 2 would not result in the same extent of circulation changes as Alternative 1, but Mobile Glen Estates would experience some access changes.

From Mobile Glen Estates, residents likely would be able to see the proposed US 395 Connector and interchange, especially the realigned Dandini Boulevard as it turns north to meet the new West Sun Valley Arterial. The US 395 Connector cut and fill slopes and eastbound off flyover ramp would be visible from most areas south of the alignments.

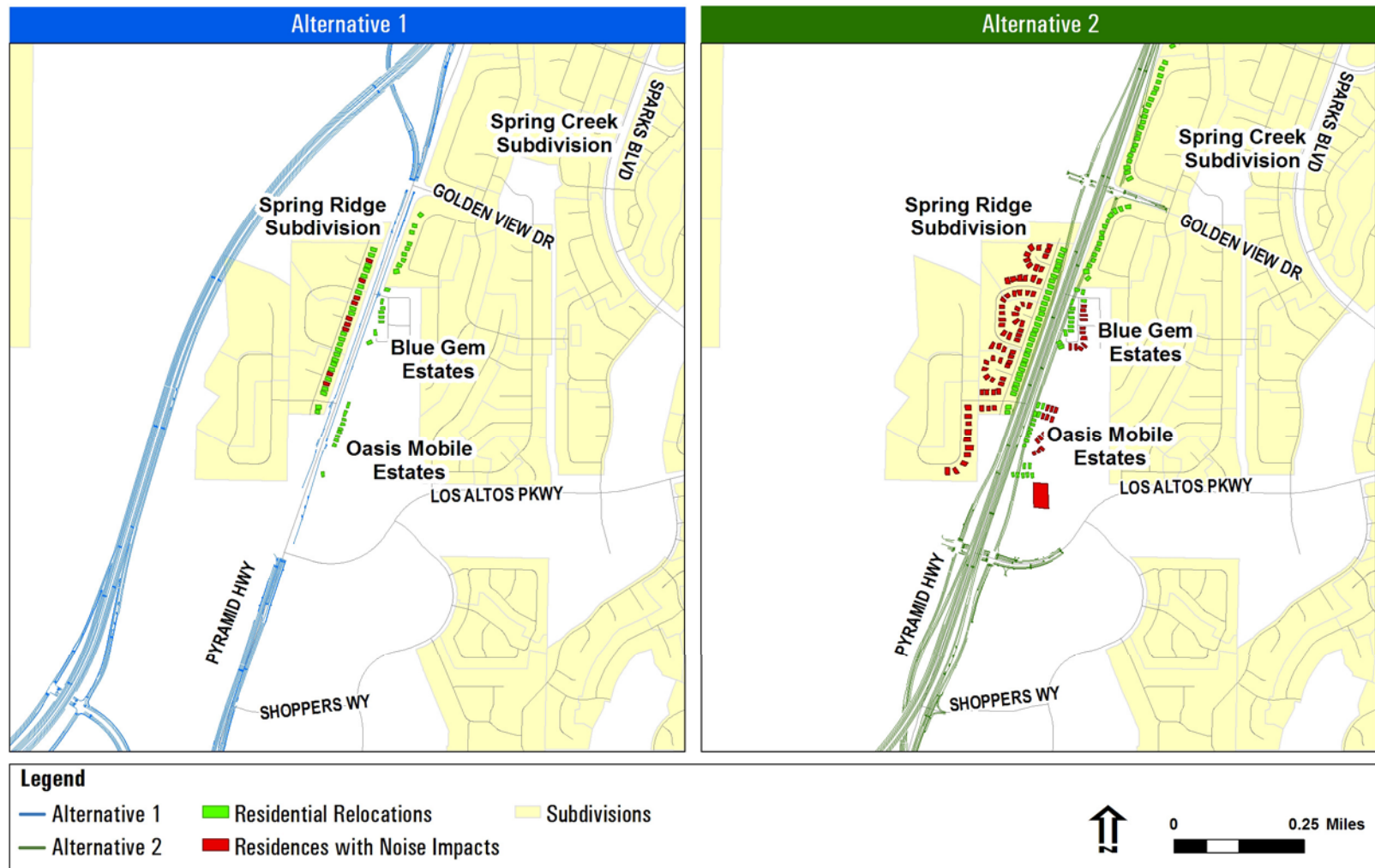


Figure 3-11. Blue Gem Estates and Oasis Mobile Estates Impacts – Alternatives 1 and 2



1

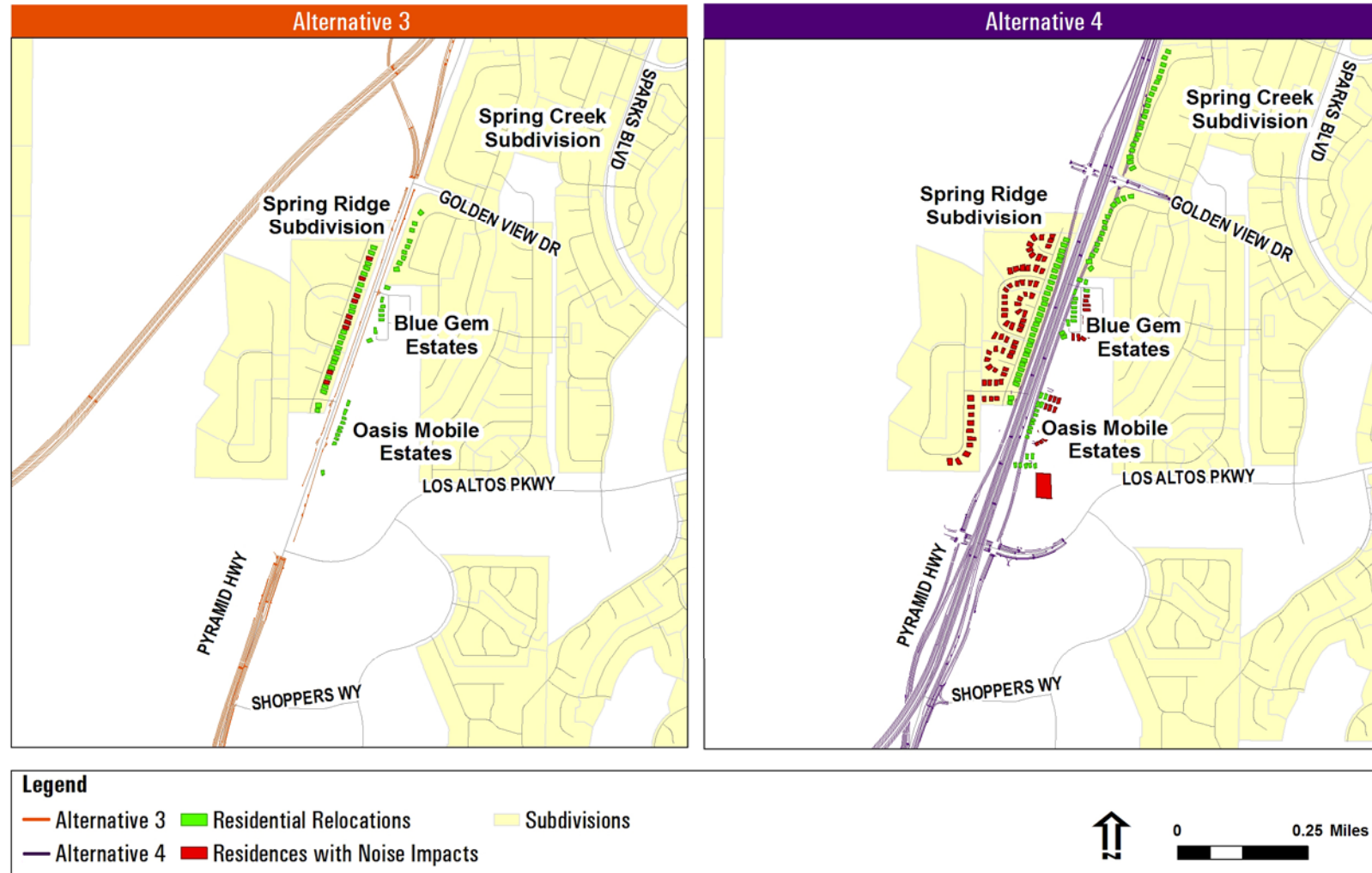


Figure 3-12. Blue Gem Estates and Oasis Mobile Estates Impacts – Alternatives 3 and 4

2

Along Pyramid Highway, Oasis Mobile Estates and Blue Gem Estates each would be impacted to a greater degree compared to Alternative 1 because of the addition of frontage roads located parallel to the freeway alignment. The greater right-of way requirements would result in potential relocation of approximately 30 residential units and the reconstruction of driveway accesses. The traffic noise analysis recommends a traffic noise barrier for residences of Oasis Mobile Estates and Blue Gem mobile home communities. As part of the public involvement process, RTC and/or NDOT will solicit input from the benefited receptors regarding proposed traffic noise barriers. If residents are in favor of a traffic noise barrier, it would change residents' views of an approximate six-foot-high existing masonry wall to that of a 12-foot-high masonry wall. Further, residents' views of hillsides west of Pyramid Highway would be obstructed.

Alternative 2 also would provide a 12-foot-high traffic noise barrier along Pyramid Highway at the Oasis Mobile Estates and Blue Gem Estates. The traffic noise barrier would change resident views of an approximate 6-foot-high existing masonry wall to that of a 12-foot-high masonry wall. Residents' views of hillsides west of Pyramid Highway would be obstructed.

3.3.5.5 Alternative 3

Under Alternative 3, the US 395 Connector would cross Sun Valley along the southern alignment, similar to Alternative 2. Despite the interchange with US 395 Connector being located on undeveloped land west of Sun Valley, impacts to the Sun Valley low-income and minority community would be similar to those described under Alternative 2. Similar to Alternative 2, the High Country neighborhood would be divided in half, leaving the northern portion and southern portion separated with cul-de-sacs, resulting in the same social and access impacts as described under Alternative 2.

Relocation impacts to the Sierra Point Apartments would be the same as Alternative 2. Alternative 3 would have the same impacts to Blue Gem Estates and Oasis Mobile Estates as Alternative 1.

3.3.5.6 Alternative 4

The US 395 Connector under Alternative 4 would impact a larger area of undeveloped land due to the West Sun Valley Arterial. Alternative 4 would have similar social and access impacts to the periphery of the four neighborhoods (Mobile Glen Estates, Ross Park Estates, Sun Valley Estates, and High Country) that bound the current intersection of Rampion Way and Sun Valley Boulevard as Alternative 1.

The impact to the mobile home communities of Oasis Mobile Estates and Blue Gem Estates would be the same as Alternative 2.



3.3.6 Environmental Justice Mitigation

This section outlines mitigation measures that the Lead Agencies will implement, or consider implementing, to mitigate the effects to the identified EJ populations. Ongoing discussions with affected communities and organizations, such as the Sun Valley GID may warrant modifying some of these measures. The Final EIS will refine mitigation measures.

As part of a comprehensive mitigation package, RTC and/or NDOT will:

- Provide the following screening walls in the minority and low-income neighborhoods, if desired by these communities:
 - ◆ Sun Villa Estates (all build alternatives)
 - ◆ Mobile Glen Estates(all build alternatives)
 - ◆ Sun Valley Estates(all build alternatives)
 - ◆ Ross Park Estates (Alternatives 1 and 4)
 - ◆ High County Estates (Alternatives 1 and 4)
 - ◆ Oasis Mobile Estates and Blue Gem Estates (Alternatives 2 and 4)
 - ◆ Final placement for any such screening walls will be evaluated during final design.
- Provide landscaping and aesthetic treatments, as well as signage improvements along Sun Valley Boulevard as part of development of a gateway concept. Details of this concept depend on which alternative is identified as the Preferred Alternative and, therefore, will be provided in the Final EIS.
- Provide specific bicycle/pedestrian improvements around the Sun Valley Boulevard interchange area, as described in Section 3.7 *Pedestrian and Bicycle Safety*.
- Provide sidewalks and bicycle lanes on the realigned Dandini Boulevard in Sun Valley.
- In accordance with RTC transit planning, provide bus turnouts and bus stop amenities for existing transit service within project limits Work with the community on locations of these turnouts.

Another mitigation measure discussed between RTC and the Sun Valley community would involve, as part of project construction, grading a location for a future middle school. This concept requires further discussion between these parties, as well as the Washoe County School Board. If a decision is reached before completion of the Final EIS, that document will clarify RTC's and/or NDOT's commitment in this regard.

NDOT will provide residential property owners and tenants with the benefits in its relocation assistance policies which are outlined in Section 3.5 *Right-of-Way/Relocation*. The EJ neighborhoods affected are comprised of many mobile or manufactured homes, as well as the Sierra Point apartment complex. In Nevada, mobile homes are considered as personal property and will be relocated as personal property, unless they have been classified as real property under NRS 361.244 (*NDOT Right-of-Way Manual*, 2011).

The current housing situation has created circumstances where some homeowners have negative equity in their homes. The FHWA Programmatic Waiver would help relieve the debt of relocated homeowners caused by declines in property value.

Due to the current housing situation, some homeowners have negative equity in their homes. The Uniform Act was passed to ensure that displaced persons “shall not suffer disproportionate injuries as a result of programs and projects designed for the benefit of the public as a whole and to minimize the hardship of displacement on such persons” (42USC 4621(b)). FHWA has instituted a temporary Programmatic Waiver of 49 CFR 24.401(b)(1) – Calculation of Replacement Housing Payment for Negative Equity (FHWA April 7, 2009; waiver expiration extended through December 31, 2014) that allows NDOT to acquire homes with negative equity without reducing other provided benefits. Because the economic downturn has caused a sharp decline in Study Area property values, many affected home owners have negative equity. As part of a larger compensation package, the FHWA waiver would help relieve the debt of relocated homeowners caused by property value declines.

3.3.7 Conclusion

Making a determination of disproportionately high and adverse effects involves balancing the impacts of the project with the benefits and mitigation. Below is a discussion of the adverse impacts and offsetting benefits, an analysis to determine if impacts are predominantly borne by low-income and minority communities, and an assessment of whether the impacts are appreciably more severe (high and adverse) for these low-income and minority communities after considering offsetting benefits.

Of the various impacts to EJ neighborhoods discussed above, relocation of residences arguably would most severely disrupt neighborhoods and their residents. Table 3-8 compares relocations in EJ and non-EJ neighborhoods.

Table 3-8. Summary of Potential Relocations by Build Alternative

Residence Type	Alternative 1		Alternative 2		Alternative 3		Alternative 4	
	EJ	Non-EJ	EJ	Non-EJ	EJ	Non-EJ	EJ	Non-EJ
Single-Family Residence	94	94	38	134	33	94	86	134
Mobile Home	22	0	34	0	22	0	34	0
Multi-Family Residence	0	0	120*	0	120*	0	0	0
Total Relocations	116	94	192	134	175	94	120	134

*Approximately 120 households relocated in Sierra Point Apartments.



As shown in Table 3-8, each build alternative would require considerable relocations in EJ and non-EJ communities alike. Assessing these relocations' relative effect on established communities warrants considering several variables. First, some mobile homes requiring relocation could potentially be moved from their current locations. All mobile homes to be relocated are located in areas identified by this analysis as EJ communities. In these instances, this would allow mobile home owners to retain their current home, presumably lessening the degree of disruption. Secondly, total EJ relocations under Alternatives 2 and 3 are notably higher than Alternatives 1 and 4 because of the potential relocation of approximately 120 households in the Sierra Point Apartment complex. Discussions with the apartment complex manager indicate that residents live in these units for an average of one to 1.5 years. The complex allows for six-month leases – shorter in certain circumstances. Further, vacancies in units not impacted could accommodate some of the relocations, allowing some to stay in this complex and lessen the degree of impact. Also, research conducted for this study indicated that there is a high availability of rental units within a five-mile radius of the Sierra Point apartments, with prices and square footage comparable to those of Sierra Point. While still constituting severe disruptions, these types of relocations arguably would be less acute than relocations to established neighborhoods where residents have lived for durations longer than one to 1.5 years.

In addition to relocations, the build alternatives would result in traffic noise impacts to communities near the proposed improvements. The traffic noise analysis conducted for this Draft EIS demonstrates that non-EJ communities would experience these impacts in higher numbers than EJ neighborhoods (see Table 3-9). The severity of traffic noise impacts generally would be comparable. The *Social Considerations, Right-of-Way/Relocation Impacts, and Environmental Justice Technical Report* (RTC, 2012) has additional details.

Section 3.2.3 *Social Resources Impacts* discusses anticipated social effects to EJ and non-EJ neighborhoods. The build alternatives would result in adverse effects to community cohesion in several EJ neighborhoods, including additional visual barriers and physical barriers to movement from one part of the neighborhood to another. In the High County and Mobile Glen neighborhoods, some community isolation would result. While non-EJ neighborhoods, such as Spring Ridge and Springwood subdivisions, would experience relocation and traffic noise impacts, they would not incur the same type of community cohesion impacts as these neighborhoods in Sun Valley. Adverse impacts would be offset by project benefits and mitigation.

Table 3-9. Traffic Noise Impacts by Community and Alternative

Community	Alternative 1		Alternative 2		Alternative 3		Alternative 4	
	EJ	Non-EJ	EJ	Non-EJ	EJ	Non-EJ	EJ	Non-EJ
Sun Villa	15	0	15	0	15	0	15	0
Northern Lights Subdivision	0	15	0	15	0	15	0	15
Whittell Pointe Apartments	0	40	0	40	0	40	0	40
Scenic Terrace Subdivision	0	48	0	48	0	48	0	48
Willow Creek Subdivision	0	5	0	5	0	5	0	5
Tierra Del Sol Subdivision	0	7	0	7	0	7	0	7
Springwood Subdivision	0	10	0	10	0	10	0	10
Mobile Glen	28	0	28	0	26	0	29	0
Ross Park Estates	10	0	2	0	2	0	1	0
Sierra Point MFR	2	0	0	0	0	0	2	0
Spring Creek	0	0	0	0	0	0	0	0
High Country	0	0	10	0	0	0	0	0
Spring Ridge	0	9	0	69	0	9	0	69
Oasis Mobile Estates	0	0	11	0	0	0	11	0
Blue Gem	0	0	11	0	0	0	11	0
Total	55	134	77	194	43	134	69	194

Improved mobility from the build alternatives generally would improve access to community facilities. The affected EJ neighborhoods in Sun Valley would benefit from reduced congestion along Sun Valley Boulevard, which would improve bus transportation and increased access to the freeway system. Out-of-direction travel required by proposed access changes would be experienced by EJ and non-EJ communities.

Putting these impacts into context shows that the Study Area has a higher percentage of minorities and low-income households than Washoe County as a whole. Based on the percentage and generally widespread distribution of minorities and low-income households throughout the Study Area, implementation of any of the build alternatives would have effects on minority or low-income populations. This suggests that, for the project as a whole, the adverse impacts borne by minority populations or low-income populations are not disproportionate given the demographic make-up of the area.

In summary, adverse impacts and benefits resulting from all build alternatives would affect both low-income and minority communities, as well as the general population. Certain EJ communities would incur adverse impacts, which would be offset by project benefits and mitigation. When considering these offsetting mitigation commitments and benefits, this analysis preliminarily concludes that no segment of the population would receive more severe impacts, or impacts of a greater magnitude than any other segment of the population. Therefore, it is preliminarily determined that, overall, minority and low-income communities would not suffer disproportionately high and adverse effects from any alternative.



The Final EIS will revisit this EJ assessment and determination if a build alternative is identified as the Preferred Alternative. This reassessment would include updated impact estimates, as needed, and allowable mitigation measures based on the ongoing outreach with the disadvantaged communities affected.

3.4 ECONOMIC RESOURCES

This section presents the economic conditions of the Study Area; describes employment, income, and industry trends; and discusses existing and planned economic development in the Study Area. Impacts are assessed for the No-action Alternative and the four build alternatives.

3.4.1 Methods

The Study team collected current data and information regarding existing economic conditions from the U.S. Census Bureau, Washoe County, the Cities of Reno and Sparks, the TMRPA, and RTC. Economic indicators include data that portrays economic trends in employment, income, industry, major employers, economic activity centers, and regional growth. The existing conditions data was the basis to assess the impacts to economic activity that may result from implementation of the alternatives.

The current economic downturn was taken into account when compiling Study Area existing conditions and assessing impacts of the proposed action.

3.4.2 Existing Conditions

3.4.2.1 Employment

Two measures of employment help illustrate past and future trends for the economic climate of a region—overall employment and unemployment numbers. Table 3-10 shows population and employment trends between 2000 and 2008, the most recent employment data available.

Table 3-10. Population and Employment Trends, 2000 to 2010

Jurisdiction	Population			Employment		
	2000	2010	% Change	2000	2010*	% Change
Reno	180,480	225,221	24.8	95,923	121,388	26.6
Sparks	66,346	90,264	36.1	35,541	47,496	33.6
Washoe County	339,486	421,407	24.1	180,963	225,53	24.6
Nevada	1,998,257	2,700,551	35.1	1,003,293	1,387,343	38.3

Source: U.S. Census Bureau, Census 2000.

*U.S. Census Bureau American Community Survey Estimate.

Washoe County has seen consistent growth in population and employment. The rate of growth for Sparks was higher than that for Reno and Washoe County, driven by the rapid increase in commercial and residential development in northern Sparks.

Table 3-11 shows future employment and population data between 2008 and 2030 for the Planning Areas in the Study Area. The areas served by Pyramid Highway are expecting high rates of growth over the next 20 years.

The unemployment rate measures the number of people actively looking for a job that did not find one in the prior month. Figure 3-13 shows the yearly unemployment rates from 2002 to 2011, as reported by the Department of Labor; Bureau of Labor Statistics.

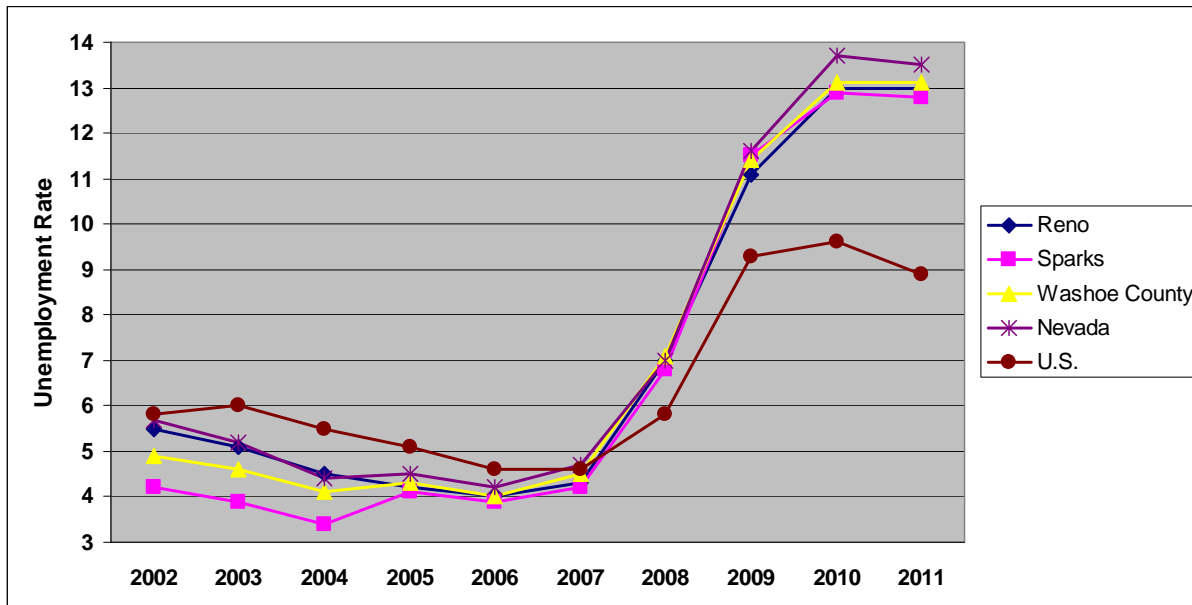
The individual jurisdictions began the decade in better shape than Nevada and the United States as a whole. However, the state and local jurisdictions were hit harder than the United States as a whole during the recent economic downturn, and have not begun to reverse the unemployment rate as well either.

Table 3-11. Future Employment and Population Data by Planning Area

Planning Area	Employment			Population		
	2008	2030	% Change	2008	2030	% Change
Central Sparks	14,963	17,115	14.4%	48,919	56,749	16.0%
Downtown Sparks	8,635	16,222	87.9%	3,464	7,086	104.6%
Northeast Sparks	4,663	4,868	4.4%	23,952	29,174	21.8%
Spanish Springs and Sparks Sphere	8,743	13,508	54.5%	41,146	62,729	52.5%
Sparks Industrial	45,860	51,321	11.9%	1,221	2,942	141.0%
Sun Valley	975	975 ¹	0.0%	21,198	41,557	96.0%
Total	83,839	104,009	24.1%	139,900	200,237	43.1%

¹Sun Valley is a suburban residential community. Some existing development along Sun-Valley Boulevard provides employment, but additional employment is not projected. Growth in this planning area is associated with residential development.

Source: TMRPA Washoe County Consensus Forecast.



Source: Dept. of Labor, Bureau of Labor Statistics, 2012

Figure 3-13. Unemployment Trends, 2002 to 2011

3.4.2.2 Income

Table 3-12 shows that the Median Household Income (MHI) in 2010 for the jurisdictions in the Study Area range from \$48,895 in Reno to \$56,775 in Sparks. MHI in Sparks has increased the most since 2000 both locally and in comparison to national numbers.

Table 3-12. Median Household Income, 2000 to 2010

Jurisdiction	Median Household Income		
	2000	2010*	Change 2000-2010(%)
Reno	\$40,530	\$48,895	\$8,365 (20.6%) increase
Sparks	\$45,745	\$56,775	\$11,030 (24.1%) increase
Washoe County	\$45,815	\$55,658	\$10,769 (21.5%) increase
Nevada	\$44,581	\$55,726	\$11,145 (25.0%) increase
U.S.	\$41,994	\$51,914	\$9,920 (23.6%) increase

Source: U.S. Census Bureau, Census 2000.

*U.S. Census 2006 to 2010 American Community Survey Three-year Estimates.

3.4.2.3 Tax Revenue

Retail sales (also referred to as consolidated taxes) and property taxes (also referred to as ad valorem taxes) are the primary components of a community's tax base. Table 3-13 shows ad valorem tax revenue for jurisdictions in the Study Area.

Table 3-13. Ad Valorem Tax Revenue, 2003 to 2009

Jurisdiction	Ad Valorem Tax Revenues (expressed in thousands)							% Change 2003-2009
	2003	2004	2005	2006	2007	2008	2009	
Sparks	19,653	19,304	20,078	21,998	25,509	27,818	30,029	52.8%
Reno	49,530	49,592	51,518	55,119	63,710	68,342	74,689	50.8%
Washoe County	136,626	150,358	162,041	174,728	197,335	210,184	223,457	63.6%

Sources: Comprehensive Annual Financial Report City of Reno 2003/2004 – 2008/2009; Comprehensive Annual Financial Report City of Sparks 2003/2004 – 2008/2009; Comprehensive Annual Financial Report Washoe County 2003/2004 – 2008/2009.

3.4.2.4 Employment by Economic Sector

In 2000, the entertainment industry, primarily gaming, made up most jobs at all jurisdictional levels both in Reno and throughout the region. Between 2000 and 2008, this industry lost the most jobs across all jurisdictions, which is attributable to the volatility of that industry in difficult economic times. In terms of total employment, the entertainment industry was overtaken at all levels by the education, health, and social services industry, which experienced strong growth throughout the region. The construction industry experienced the highest rates of growth between 2000 and 2008 in all jurisdictions.

3.4.2.5 Economic Activity Centers and Regional Growth

The Pyramid Highway corridor, a major economic center can be divided into these three separate economic activity centers: Tierra del Sol, the development formerly known as Kiley Ranch, and Sparks Galleria. On the western side of the Study Area, a fourth economic activity center is growing in the Dandini Regional Center. These are displayed in Figure 3-14.

There are two major planned developments at the northern end of the corridor at Tierra del Sol Parkway – Tierra del Sol and Stonebrook. The commercial portion of Tierra del Sol is located on approximately 25 acres north of the Lazy 5 Regional Park adjacent to and east of Pyramid Highway. This development is planned to be anchored by the Lazy 8 casino and hotel. Proposed amenities include a 200-room hotel, a movie theater, and multiple restaurants. Stonebrook is located east of Tierra del Sol and will include an approximately 34-acre business park and nearly 50 acres of commercial development.

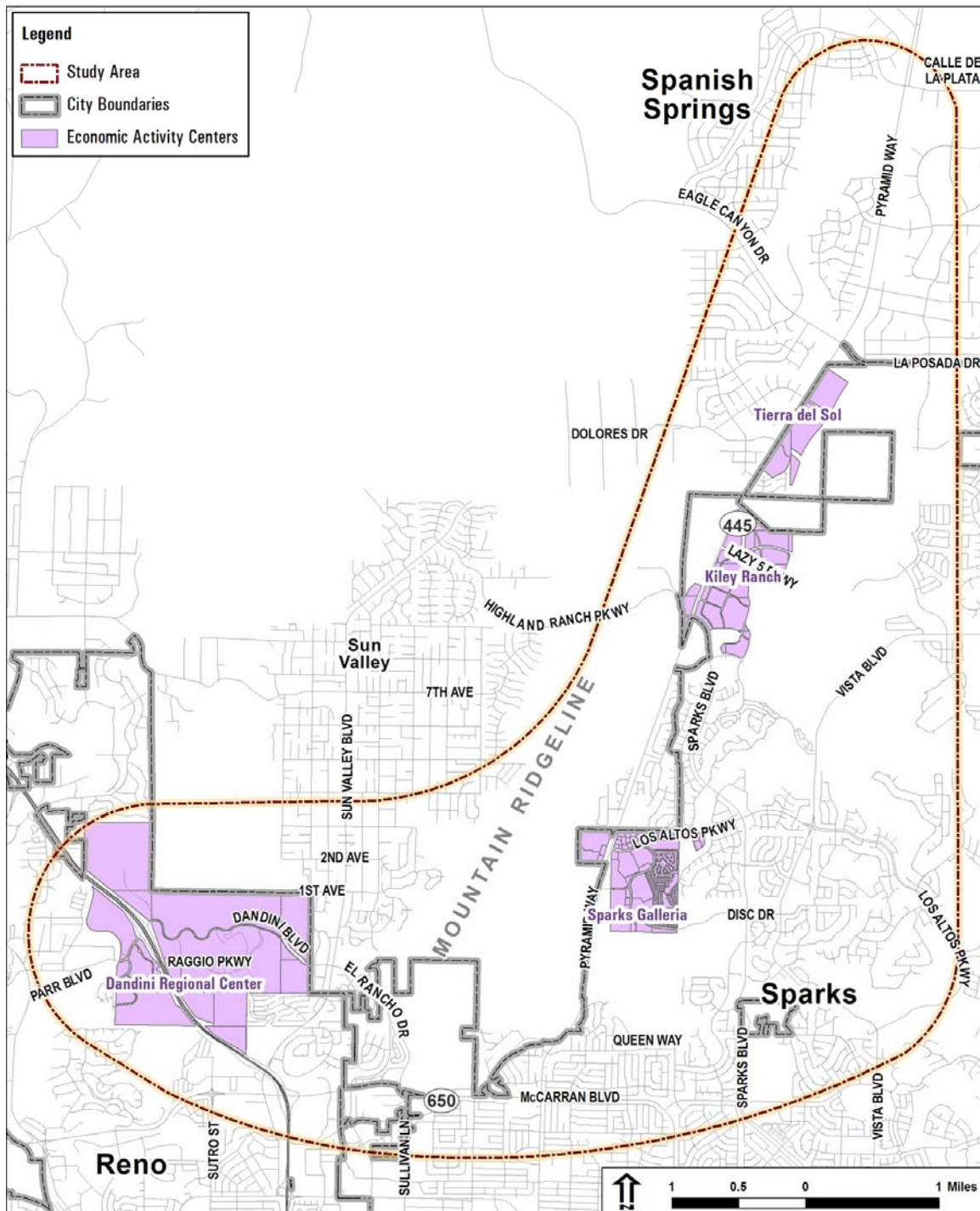


Figure 3-14. Economic Activity Centers

Sparks Boulevard is the location of the development that was formerly planned to be Kiley Ranch North. As discussed earlier, this development has been sold in foreclosure; however, conversations with local planners indicate that it is likely that a similar development will occur in that location. The 800-acre Kiley Ranch was planned to include a business park and commercial development.

Disc Drive and Los Altos Parkway provide access to four separate commercial areas: the Sparks Galleria; Sparks Crossing; the Spanish Springs Town Center, and, on the west side of Pyramid at the Los Altos Parkway – Walmart and Kohls.

The Dandini Regional Center is located in an area that surrounds the Parr/Dandini Intersection off US 395. Although predominantly public institutional uses, the remaining 1,000 acres of the Dandini Regional Center are planned for continued expansion that will also include retail and office development.

In addition to activity centers in the Study Area, other regionally important economic activity centers are located to the south. These include downtown Reno and the I-80 Corridor. Downtown Reno is the center of all economic activity for the region, with over 25,000 people working in the area. Primarily focused on entertainment, the main economic drivers are hotels, casinos, and restaurants.

The I-80 Corridor in Sparks is less centralized, but includes supports 35,000 jobs and includes the industrial sectors to the south, downtown Sparks, and the Sparks Marina. Downtown Sparks is primarily public institutions and government-related employment. Sparks Marina is a major redevelopment that will include retail, hotel, and casino uses.

3.4.3 Economic Impacts

Economic impacts include changes to short- and long-term employment and indirect effects to economic activity from transportation improvements. Relocations temporarily reduce tax base for local governments and access changes can affect economic viability of existing and proposed land uses.

3.4.3.1 *No-Action Alternative*

The No-Action Alternative would potentially require business relocations from construction of new roads; the exact relocations are not available at this time. The No-Action Alternative would not provide the capacity and access improvements associated with the build alternatives. This would adversely affect the long-term growth of the tax base and revenues that would result from economic activity, such as planned development. Worsening congestion and safety concerns would make it increasingly difficult to access businesses throughout the Study Area. Future economic growth could shift from the Study to south along the I-80 corridor, where regional access and large parcels of land are available for redevelopment and adequate infrastructure is already in place.



3.4.3.2 Build Alternatives

Impacts Common to all Build Alternatives

Employment

All build alternatives would result in the potential for increased direct employment related to temporary highway construction jobs. In addition, public investment in infrastructure would result in indirect employment in related industries, such as workers who produce steel, concrete, and others, although these industries are less likely to be local. Further, induced employment can be expected as a result of the consumer spending that would result from the wages paid to workers directly or indirectly employed through the infrastructure investment. Although detailed costs have not yet been calculated for the build alternatives that would accurately estimate potential employment gains, the FHWA's Office of Transportation Policy Studies has calculated the number of jobs and income typically generated from federal-aid highway projects. As noted in the Employment Impacts of Increased Highway Infrastructure Investment, FHWA estimates that 34,779 jobs (11,921 construction-oriented jobs; 5,405 supporting industry jobs; and 17,453 induced employment jobs) producing employment income of \$1.3 billion would be supported by each \$1.25 billion in highway capital expenditure (New England Council, 2008). The jobs produced would be primarily local; however, the number also includes jobs produced regionally, statewide, and beyond. The build alternatives would likely result in capital expenditures that approach this amount.

Construction of the build alternatives would generate temporary construction employment. Construction employment can be estimated by taking the project construction cost and attributing a portion of it to labor costs (assuming an industry standard of 50 percent). The estimated labor cost is then divided by the average income (including benefits) for a construction worker in the Reno/Sparks MSA (estimated at \$41,500 in 2011).

Employment growth in the Study Area would occur regardless of whether or not the project is implemented. However, studies show that investment in transportation infrastructure can stimulate local economies, both in the short and long term. Therefore, the transportation improvements and improved access provided by the build alternatives would boost potential for economic growth and employment. Areas near interchanges, in particular, would serve as attractive areas for business investment.

Tax Revenue

The build alternatives would require additional land not within the right-of-way. Acquisition of these lands would result in loss in the tax base and tax revenues for the districts and local jurisdictions that benefit from these revenues. Because of market conditions, the Reno/Sparks metropolitan area currently has a considerably high number of available homes on the market. A review of the real estate market shows

there are thousands of existing homes for sale and more than 7,000 homes in some stage of default. In 2011, around 6,000 homes sold, the strongest year for home sales since 2006 (Hidalgo, 2012). Based on the number of available homes and approved undeveloped lots, it is estimated that the real estate market has a four- to five-year housing inventory. Before or during final design, RTC and/or NDOT will prepare a comprehensive relocation/acquisition plan to ensure availability of relocation properties. Growth and development are anticipated in the future, but may be delayed until the economy recovers and the inventory of available housing declines. Residential relocations that would occur under any of the build alternatives would help to fill some of the excess housing inventory.

Studies have demonstrated that in locations where access would be improved or capacity added through the build alternatives, property values would likely increase (Huang 1994 and Carey 2001). Conversely, property values could decrease in locations where proximity to improved transportation facilities would result in traffic noise impacts, increased air emissions, visual impacts, or access changes resulting in out-of-direction travel.

Studies have also demonstrated that these losses in property values are typically offset by the benefits of improved transportation facilities. Improved access expands business potential, leading to new jobs and higher wages and salaries, thus increasing the tax base and revenues flowing to local and state governments. Residential and commercial property values would rise with proximity to improved transportation infrastructure, including public transit and other multimodal improvements like those included in the build alternatives. Transportation improvements have been shown to save businesses and households thousands of dollars each year in transportation expenditures.

North Pyramid

Under all build alternatives, the improvements would convert Pyramid Highway to a limited-access freeway between Highland Ranch Parkway and Eagle Canyon Drive with half interchanges at Eagle Canyon Drive, Dolores Drive, Lazy 5 Parkway, Highland Ranch Parkway and one-way frontage roads between each half interchange. This would alter access to the future economic activity centers of Tierra Del Sol and Kiley Ranch and would require acquisition of lands not currently dedicated to transportation right-of-way from within these developments. Construction has not yet begun in these areas, and RTC has coordinated with developers regarding consistency of future access and circulation.

Access changes for these areas would include some out-of-direction travel; however, these changes would result in a net benefit to proposed businesses in the area by improving capacity and ease of access to the general area through the conversion of Pyramid Highway to a limited-access freeway. In addition, the US 395 Connector would allow businesses to draw on an increased consumer base from the northwest Sparks/Reno metropolitan area. Inclusion of the one-way frontage roads would create



less restrictive access control from the public roadways and require the developers to rely less on internal circulation than would be the case with the existing Pyramid Highway.

Interchange improvements at the Eagle Canyon Drive/Pyramid Highway interchange under all build alternatives would result in the acquisition of five businesses.

Developable land in the immediate vicinity is available for potential relocations of these businesses, which would allow continued employment at the relocated businesses (See Section 3.5.4.2, *Relocation Potential Assessment* and Table 3-19 for information regarding potential commercial relocation properties nearby).

US 395 Connector

Construction of the US 395 Connector would have similar impacts to the Dandini Regional Center under all build alternatives, although access would differ slightly among the alternatives. Under all build alternatives, the US 395 Connector would bisect the property and require conversion of lands into transportation use. The existing Dandini Boulevard would be removed, and a new roadway alignment would be constructed that continues to provide access to the existing TMCC and DRI campuses. No existing buildings would be impacted by this reconfiguration; however, some parking accesses would require reconfiguration to meet the new roadway.

Although construction of the US 395 Connector would remove some developable land from potential use in the Dandini Regional Center, the master plan for this area recognizes the RTC's commitment to constructing the US 395 Connector and that it would likely require some property from the area. Construction of all build alternatives would improve general access to the Center. The Study team has coordinated with DRI representatives throughout the Study on various alignments and their relative effects on existing and planned facilities. Their input was a contributing factor for eliminating a southern alternative for the US 395 Connector during alternatives screening. The current alignment of the US 395 Connector strikes a balance between effects to the Dandini Regional Center and the need for improved regional transportation.

During construction, some detours, traffic delay, and out-of-direction travel would be required to reach businesses adjacent to work areas under all build alternatives. Construction-related impacts would be greatest for retail businesses primarily accessed from Pyramid Highway, Disc Drive, and Sun Valley Boulevard. These businesses would potentially lose customers during construction.

Alternative 1

A preliminary cost estimate for the build alternatives was developed including construction costs, engineering and inspection costs, and costs associated with earthwork, including excavation and hauling. The cost estimates do not include costs for right-of-way acquisition. After a preferred alternative is selected, a phasing plan and accompanying cost estimate will be developed (see Section 2.5 for more information on

project phasing). The cost estimate for Alternative 1 ranges between \$704 million and \$776 million.

Construction employment for Alternative 1 was estimated based on the assumptions described in Impacts Common to all Build Alternatives. Construction employment under Alternative 1 would support an average of 750 employees per year the entire construction period.

Employment would also be temporarily impacted by the relocation of businesses for right-of way acquisition. Affected employees would have to travel to a new location to maintain their employment or find employment elsewhere. Alternative 1 would require the potential relocation of a total of 19 separate businesses located on 12 commercial properties

Alternative 1 would not change access to businesses, including those that are a part of the Sparks Galleria economic activity center, located along Pyramid Highway between Highland Ranch Parkway and Disc Drive. Alternative 1 would widen Pyramid Highway in this area and result in the acquisition of five existing businesses and additional impacts to parking at others. Widening of Pyramid Highway, improved intersection operation, multimodal improvements, and construction of the US 395 Connector would increase access to established businesses and major employment centers, resulting in an increase in economic activity and expanding opportunities for employment.

Under Alternative 1, the US 395 Connector would cross Sun Valley at approximately Rampion Way and include an interchange at Sun Valley Boulevard. These improvements would result in the acquisition of five existing businesses, including two restaurants, two retail businesses, and one day care center located near this interchange. Despite these localized adverse effects, the new interchange would increase access and visibility of the many businesses along Sun Valley Boulevard. Displaced businesses could likely relocate nearby, given the availability of commercial space to take advantage of the access improvements. An internet search of business real estate websites shows that there are available replacement sites of approximately similar sizes as those businesses that would be relocated in the areas where these relocations would occur.

Alternative 2

The cost estimate for Alternative 2 ranges between \$766 million and \$844 million. Construction employment for Alternative 2 was estimated based on the assumptions described in Impacts Common to all Build Alternatives. Because it has a higher construction cost, construction employment under Alternative 2 would support an average of 790 employees per year throughout the entire construction period.



Alternative 2 would have more severe relocation impacts to businesses, mainly because of the impacts to Sparks Galleria. Alternative 2 would require the potential relocation of 26 commercial properties containing 43 separate businesses. The high number of commercial relocations makes it less likely that all businesses would be able to relocate in nearby areas. Affected employees would have to travel to a new location to maintain their employment or find employment elsewhere.

Loss of these businesses and, in particular, the two larger retailers (Michaels and Best Buy) from the Sparks Galleria would likely reduce the customer draw of the Sparks Galleria. Available space for relocation would not be entirely accommodated within the Sparks Galleria; however, many of these businesses possibly could move to the planned economic activity centers of Tierra Del Sol and Kiley Ranch. Businesses that remain in the Sparks Galleria would likely benefit from increased traffic on Pyramid Highway.

Alternative 2 improvements would change access to businesses along Pyramid Highway between Highland Ranch Parkway and Disc Drive far more drastically than under Alternative 1. Under Alternative 2, this segment of Pyramid Highway would be converted to a six-lane freeway with half interchanges at Disc Drive and Golden View Drive and one-way frontage roads between these half interchanges. This would drastically alter access to the commercial properties in the Sparks Galleria by requiring travelers to exit the new Pyramid Highway onto the one-way frontage road to access entrance to the particular commercial area they are seeking. This would result in out-of-direction travel and initially confuse customers of the established businesses in the area. However, these changes would result in a net benefit to the remaining businesses in the area by improving capacity and ease of access to the general area through the conversion of Pyramid Highway to a limited-access freeway. Inclusion of the one-way frontage roads would create less restrictive access control from the public roadways and allow the development to rely less on internal circulation than is the case with the existing Pyramid Highway. In addition, the US 395 Connector would allow businesses to draw on an increased consumer base from the northwest Sparks/Reno metropolitan area.

Under Alternative 2 the US 395 Connector would cross Sun Valley just north of the existing Dandini Boulevard/Sun Valley Boulevard intersection and include an interchange at Sun Valley Boulevard. These improvements would result in the acquisition of two existing businesses located near this interchange. However, because the new interchange would increase visibility of businesses in the area, it is likely that these relocated businesses or new businesses could develop nearby to take advantage of the access improvements in the area.

Alternative 3

The cost estimate for Alternative 2 ranges between \$703 million and \$755 million making it the least expensive of all alternatives. Construction employment for Alternative 3 was estimated based on the assumptions described in Impacts Common to all Build Alternatives. Construction employment under Alternative 3 would support an average

of 740 employees per year throughout the entire construction period. This is the fewest construction jobs of all build alternatives.

The improvements to Pyramid Highway under Alternative 3 would be nearly identical to those under Alternative 1. There would be no changes in access to businesses along Pyramid Highway between Highland Ranch Parkway and Disc Drive, although there would be acquisitions of existing businesses and additional impacts to parking at others. Economic conditions would also be impacted by the relocation of businesses for right-of-way acquisition. Alternative 3 would require the potential relocation of a total of 7 commercial properties affecting 14 separate businesses. Alternative 3 would potentially require relocation of the fewest businesses of all build alternatives. Widening of Pyramid Highway, improved intersection operation, multimodal improvements, and construction of the US 395 Connector would increase access to established businesses and major employment centers, resulting in an increase in economic activity and expanding opportunities for employment.

Under Alternative 3, the US 395 Connector would cross Sun Valley just north of the existing Dandini Boulevard/Sun Valley Boulevard intersection. A new interchange would tie into the existing Dandini Boulevard just west of Sun Valley. There would be no business acquisitions in the Sun Valley area under Alternative 3. The new interchange would increase visibility and potentially patronage of existing businesses in the area of the Dandini Boulevard/Sun Valley Boulevard intersection. Additionally, because the new interchange would be constructed on vacant lands on the eastern side of the Dandini Regional Center, there would be opportunities for new businesses seeking to take advantage of the access improvements in the area.

Alternative 4

The cost estimate for Alternative 2 ranges between \$790 million and \$871 million making it the most expensive of all alternatives. Construction employment for Alternative 4 was estimated based on the assumptions described in Impacts Common to all Build Alternatives. Construction employment under Alternative 4 would support an average of 840 employees per year throughout the entire construction period. This is the most construction jobs among all alternatives.

Employment would also be temporarily impacted by the relocation of businesses for right-of-way acquisition. Alternative 4 would require the potential relocation of 28 commercial properties that contain 45 separate businesses, most of which would be from the Sparks Galleria economic activity center. Affected employees would have to travel to a new location to maintain their employment or find employment elsewhere.

The improvements to Pyramid Highway under Alternative 4 would be nearly identical to those under Alternative 2. These improvements would include the conversion of Pyramid Highway to a six-lane freeway between Highland Ranch Parkway and Disc



1 Drive with half interchanges at Disc Drive and Golden View Drive and one-way
2 frontage roads connecting those interchanges. The improvements would alter access to
3 businesses along Pyramid Highway more drastically than under Alternatives 1 and 3 by
4 requiring travelers to exit the new Pyramid Highway onto the one-way frontage road to
5 access the entrance to the particular commercial area they are seeking.
6

7 As under Alternative 2, loss of this high number of businesses from the Sparks Galleria
8 would likely reduce the economic activity center's customer draw. Available space for
9 relocation would not be entirely accommodated in the Sparks Galleria; however, it is
10 possible that many of these businesses could move to the future economic activity
11 centers of Tierra Del Sol or any development that occurs in the former and Kiley Ranch
12 area. These locations may require additional travel for those coming from the south;
13 however, the travel time would be minimal as a result of the overall transportation
14 improvements that the project offers. Businesses that remain in the Sparks Galleria
15 would likely benefit from increased traffic on Pyramid Highway, which would provide
16 the majority of access to these future economic activity centers.
17

18 Access changes would result in out-of-direction travel for customers of the established
19 businesses in the area. However, there would be a benefit to the remaining businesses in
20 the area through the improved capacity and ease of access to the general area. Inclusion
21 of the one-way frontage roads would create less restrictive access control from the public
22 roadways and allow the development to rely less on internal circulation than is the case
23 with the existing Pyramid Highway. In addition, the US 395 Connector would allow
24 businesses to draw on an increased consumer base from the northwest Sparks/Reno
25 metropolitan area.
26

27 Under Alternative 4, the US 395 Connector would cross Sun Valley at approximately
28 Rampion Way and include an interchange that would tie into the existing Dandini
29 Boulevard just west of Sun Valley. The Rampion Way crossing of Sun Valley Boulevard
30 would result in the acquisition of four commercial properties. The new interchange
31 would increase visibility and potentially patronage of existing businesses in the area of
32 the Dandini Boulevard/Sun Valley Boulevard intersection. Additionally, because the
33 new interchange would be constructed on vacant lands on the eastern side of the
34 Dandini Regional Center, it is likely that new businesses would develop to take
35 advantage of the access improvements in the area.
36

37 During construction some detours, traffic delay, and out-of-direction travel would be
38 required to reach businesses in the vicinity of the Dandini Regional Center, Sparks
39 Galleria, and on Sun Valley Boulevard. These businesses would potentially lose
40 customers during construction.

41 Economic Impacts Summary

42 All build alternatives would result in economic benefits through increased employment
43 as short-term construction-related employment and long-term employment resulting

from economic growth. Also, general access and connectivity would improve under all alternatives through highway and multimodal improvements, thereby increasing economic development potential.

Access changes would include some out-of-direction travel where one-way frontage roads are proposed north of Highland Parkway under all alternatives and near Los Altos Parkway under Alternatives 2 and 4. These changes would also have a benefit to businesses by improving capacity and ease of access to the general area. In addition, the US 395 Connector would allow businesses to draw on an increased consumer base from the northwest Sparks/Reno metropolitan area. Inclusion of the one-way frontage roads would create less restrictive access control from the public roadways and require the developers to rely less on internal circulation than would be the case with the existing Pyramid Highway.

Employment benefits would be tempered by the relocation of businesses acquired for right-of way. Alternatives 2 and 4 would result in extremely high numbers of potential business relocations in the area of the Sparks Galleria. Under Alternatives 2 and 4, the loss of businesses from the Sparks Galleria would likely reduce customer draw.

Table 3-14 summarizes the potential commercial relocations that would be required under each of the build alternatives.

Table 3-14. Potential Commercial Relocations

Address	Business Name	Relocations by Alternative			
		1	2	3	4
Sun Valley					
4696 Sun Valley Blvd	Rainbow Market/Arco Gas		X		
4845 Sun Valley Blvd	Kid City Academy	X	X		X
4873 Sun Valley Blvd	Right-Away Smog	X			X
4850 Sun Valley Blvd	Domino's Pizza	X			
4880 Sun Valley Blvd	Valley Jewelry and Loan	X			X
4978 Sun Valley Blvd	Taco Bell	X			X
Sparks Galleria					
102 Los Altos Pkwy	Money Tree		X		X
122 Los Altos Pkwy	Jack in the Box		X		X
129 Los Altos Pkwy	State Farm Insurance, Togo's, CJ Palace, Art in Motion		X		X
137 Los Altos Pkwy	Chili's (currently vacant)		X		X
142 Los Altos Pkwy	US Bank		X		X
155 Los Altos Pkwy	Best Buy		X		X
162 Los Altos Pkwy	KFC	X	X	X	X



Table 3-14. Potential Commercial Relocations

Address	Business Name	Relocations by Alternative			
		1	2	3	4
165 Los Altos Pkwy	Michael's Arts and Crafts		X		X
172 Los Altos Pkwy	Instant Smog Inc.	X	X	X	X
182 Los Altos Pkwy	Instant Lube	X	X	X	X
192 Los Altos Pkwy	Discount Tire		X		X
202 Los Altos Pkwy	Renown Health Lab Services		X		X
222 Los Altos Pkwy	Pacific Sun Tanning, Grampy's, Spicy Pickle (currently vacant), Tha Joint Sushi		X		X
252 Los Altos Pkwy	Del Taco		X		X
282 Los Altos Pkwy	Fed Ex Kinko's, Starbucks, Bobby Pages Dry Cleaners		X		X
292 Los Altos Pkwy	Walgreens		X		X
300 Los Altos Pkwy	Spanish Springs Towne Center: Moda Italia & Tailoring, Eternal Boardshop, Mattress Land		X		X
5015 Pyramid Hwy	Absolute Dental		X		X
5005 Pyramid Hwy	Bank of America		X		X
6255 Pyramid Hwy	Legacy Christian School		X		X
North Pyramid Highway					
9705 Pyramid Hwy	Walgreens (Eagle Landing)	X	X	X	X
9700 Pyramid Hwy	Burger King (Eagle Landing)	X	X	X	X
8995 La Posada Dr	Texaco	X	X	X	X
15 Eagle Canyon Dr	Pizza Hut, 7-Eleven, Icyanyoga, Klunkers Ice Cream and Sweets, L7 Martial Arts, Simply Thai, Domino's Pizza, Allstate Insurance Agency	X	X	X	X
Total Commercial Property Relocations		14	26	9	28
Total Businesses Relocated		21	43	16	45

Note: Data on business occupants was collected in November 2011. Data will be updated prior to the Final EIS.

3.4.4 Economic Mitigation

Acquisition or relocation of property will comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and other applicable relocation assistance programs. New access will be provided for properties where existing accesses are removed. Although some businesses may have changes in access due to the project, RTC and/or NDOT will work to ensure that some form of access is provided to all businesses. To avoid disruption of business activities during construction, the new access will be provided before the existing access is removed.

The Study team conducted a preliminary search for commercial properties for lease within the areas where relocations are expected to occur under the build alternatives to determine availability of suitable properties for commercial relocation. It was determined through this preliminary search that there are available properties that represent the same range of business types and location criteria represented by the businesses that could be affected by the build alternatives. Before or during final design, RTC and/or NDOT will prepare a comprehensive relocation/acquisition plan to ensure availability of relocation properties.

A traffic control plan will be developed to minimize interference to traffic flow from construction equipment and activities. RTC and/or NDOT will provide advance notice to emergency service providers, local businesses, and residents with regard to road delays, access, and special construction activities. These notifications will be accomplished through radio and public announcements, newspaper notices, on-site signage, RTC's website, and during public meetings when possible. To minimize disruption to traffic and local businesses, construction activities will be staged and work hours varied. Throughout the construction stage, access will be preserved for each affected business. Where feasible, retaining walls will be constructed along Pyramid Highway to minimize impacts to commercial development.

3.5 RIGHT-OF-WAY/RELOCATION

This section discusses right-of-way requirements and displacements of residences and businesses that may occur under each of the build alternatives, including BLM land that would be appropriated for transportation use. Refer to *Pyramid Highway and US 395 Connection: Social Considerations, Right-of-Way/Relocation Impacts, and Environmental Justice Technical Report* (RTC, 2012) for details.

The estimates of right-of-way and BLM land required in this section are preliminary and subject to revision during final design and right-of-way acquisition process.

3.5.1 Methods

To assess right-of-way and potential relocation impacts, the Study team first developed a boundary representing the projected project footprint. This line served as a "worst case" preliminary estimate of right-of-way where parcels may be impacted and acquired as a result of the build alternatives.

Next, a professional right-of-way specialist used the design footprint of the project in conjunction with Washoe County parcel data to determine right-of-way impacts, including partial and full property acquisitions. An analysis was then conducted to identify the number and type of displacements that may occur, any relocation challenges that may result, and measures to mitigate these challenges. An assessment was



conducted to determine the availability of suitable replacement property to accommodate displacements.

The BLM land records databases (LR2000 and Rangeland Administration System) were reviewed to identify and locate existing rights-of-way, active and closed mining claims, and grazing allotments and permits in the study area. BLM resource specialists were contacted, as necessary, to clarify the database information.

3.5.2 Existing Conditions

This section describes the right-of-way and summarizes the land uses along the corridors. Section 3.1 *Land Use* provides more detailed information on the land uses. In addition, this section describes BLM's grazing allotments/permits and mining and mineral rights identified within the Study area. Section 3.1.2.3 includes a discussion of BLM disposal lands.

Widths of existing rights-of-way vary throughout the Study Area. The existing US 395 right-of-way is approximately 250 feet wide and approximately 525 feet wide near interchanges. Most of the existing Pyramid Highway right-of-way is approximately 150 feet wide; south of Los Altos Parkway where BLM land is located the right-of-way is approximately 365 feet wide. The existing Sun Valley Boulevard right-of-way is approximately 115 feet wide, and the existing Disc Drive right-of-way is approximately 90 feet wide. Developments near these roadways are below:

- **US 395 near Parr Boulevard:** Existing development consists predominantly of commercial, industrial, and residential uses.
- **Sun Valley Boulevard:** Existing development along Sun Valley Boulevard from Dandini Boulevard to East 1st Avenue is predominantly commercial and residential. The northeast corner of Sun Valley Boulevard and El Rancho Drive includes the Sierra Point multiunit apartment complex and the Rainbow Market service station. All residences are single-family units in a medium density suburban setting, consisting mostly of manufactured or modular structures. Residences set back from Sun Valley Boulevard, between Dandini Boulevard and 1st Avenue, are single-family, medium density suburban housing. Further east, development near Rampion Way consists of high-density, suburban, single-family properties.
- **Pyramid Highway:** South of Disc Drive, there is a mix of commercial, residential, and vacant land uses. Retail commercial properties are located at Disc Drive extending north beyond Los Altos Parkway. North of Los Altos Parkway to Kiley Parkway, most properties consist of low- to high-density urban residential housing. Two mobile home parks, Blue Gem Estates and Oasis Mobile Estates, are located on the east side of Pyramid between Los Altos Parkway and Golden View Drive. The Legacy Christian School is directly adjacent to Pyramid

Highway just south of Spring Ridge Drive, and Summit Christian Church is located at Golden View Drive. Between Kiley Parkway and Tierra del Sol Parkway, most properties on both sides of the Pyramid Highway are undeveloped. Between Tierra del Sol Parkway to Calle de la Plata, land use is mainly single-family residential with varying densities. Commercial properties surround the Pyramid Highway and Eagle Canyon Road/La Posada Drive intersection.

- **Disc Drive:** Commercial and retail development is located along Disc Drive at Pyramid Highway and Vista Boulevard, with two residential developments and a large agricultural property located between the commercial developments. Two residential developments are located east of Sparks Boulevard and immediately south of Disc Drive.

Rights-of-Way

BLM authorizes specific use of public land by issuing right-of-way grants for projects. Existing rights-of-way on public land in the Study Area include roads, power lines, communication sites, pipelines, cable, and water lines (see Table 4.1 in the *Pyramid Highway and US 395 Connection: Social Considerations, Right-of-Way/Relocation Impacts, and Environmental Justice Technical Report* [RTC, 2012]).

FHWA, NDOT, and BLM operate under an Interagency Agreement and a Memorandum of Understanding for appropriating public land from BLM for highway rights-of-way. The agencies follow specific procedures in processing federal-aid highway right-of-way projects. The outcome of this process is a Letter of Consent from BLM to FHWA, followed by a Highway Easement Deed from FHWA to NDOT.

Grazing Allotments/Permits

There are two grazing allotments within the Study Area: the Paiute Canyon and the Wedekind allotments (see Figure 4.1 in the *Pyramid Highway and US 395 Connection: Social Considerations, Right-of-Way/Relocation Impacts, and Environmental Justice Technical Report* [RTC, 2012]). There are nine active grazing permits within the Paiute Canyon allotment. There are no active permits within the Wedekind allotment; however, the allotment is currently in custodial management to protect existing resource values. BLM will determine the future use of the vacant allotment through its land use planning process. BLM land that would be affected by the proposed action is not actively grazed currently, based on multiple and ongoing field observations.

Mineral Rights and Mineral Materials

The study area is located within the Wedekind and Pyramid mining districts. No active mining claims are currently located within the Study Area. There is one active mining



claim (Hungry Ridge #1), located since 1987, on public lands that had been historically mined in Washoe County. However, it is located outside of the Study Area.

For more information on grazing allotments and mining/mineral rights, please refer to the *Pyramid Highway and US 395 Connection: Social Considerations, Right-of-Way/Relocation Impacts, and Environmental Justice Technical Report* [RTC, 2012]).

3.5.3 Right-of-Way/Relocation Impacts

To accommodate the proposed improvements, the build alternatives would require acquisition of property, relocation of businesses or residences and conversion of property into transportation right-of-way. This section discusses estimated right-of-way and potential relocation impacts, and the measures to mitigate these impacts.

3.5.3.1 No-Action Alternative

The No-Action Alternative would potentially require new right-of-way; property acquisitions; commercial business, industrial and residential relocations, as well as right-of-way from BLM as a result of new road construction; the exact right-of-way and relocations are not available at this time.

3.5.3.2 Build Alternatives

Impacts Common to all Build Alternatives

The right-of-way impacts common to all four build alternatives are those at the Pyramid Highway/US 395 Connector interchange with US 395, along Disc Drive, and along Pyramid Highway north of Sparks Boulevard to Calle de la Plata. Acquisitions in these areas would result in the potential relocation of 32 single-family residences, 4 mobile homes, and 4 commercial businesses. None of the build alternatives would require any relocation of parks or police or fire departments. The following sections summarize these impacts by specific area.

BLM land that would be affected by the proposed action is not actively grazed currently, based on multiple and ongoing field observations. Therefore, no effects to grazing allotments are anticipated under any build alternative. Effects to any grazing allotment and/or permits would be further investigated during later stages of project development, including Final EIS preparation, final design, and the right-of-way process.

No mining claims are currently located within the Study Area; therefore, no impacts to such claims would occur under any build alternative.

US 395/ Connector Interchange

The interchange improvements at US 395 and Parr Boulevard would have minor impacts to the Washoe County Sheriff's Office property and parking as a result of the

widening of Parr Boulevard and the placement of a new ramp from US 395 to the Connector. Also impacted in this area are portions of the TMCC and DRI campus; however, the US 395 Connector would not require any full property relocations or impacts to any structures.

Pyramid Highway

Improvements to Pyramid Highway under all build alternatives would require potential relocations in the Springwood and Tierra del Sol subdivisions. They also would affect one community facility – the Spanish Springs Community Library. This property, located just south of Tierra Del Sol Parkway on the eastern side of Pyramid Highway, currently has right-in/ right-out access from Pyramid Highway. This access would be removed and replaced with access from the future Lazy 5 Parkway, associated with future development planned for the area south of the Lazy 5 Regional Park and library location. A plan for this access change has been developed prior and apart from this Study and may be implemented separately.

Each build alternative would require right-of-way from a parcel held in trust for the Reno-Sparks Indian Colony (RSIC) by the Bureau of Indian Affairs (BIA). The RSIC parcel is located south of Eagle Canyon Road and west of Pyramid Highway in the northern portion of the Study Area, and is zoned commercial. Potential property acquisition from the RSIC parcel would be approximately 3.05 acres (13.9 percent) of the 22-acre parcel. Partial acquisition of the two-acre Moana Nursery located on the site would be required for construction of Pyramid Highway, the new frontage road, and new access. All build alternatives would provide a new access to the RSIC parcel from the proposed frontage road to provide access to future commercial development currently planned for the parcel.

Tribal governments are sovereign nations and acquiring trust land for right-of-way requires adherence to unique processes, as described in Section 3.5.4 *Right-of-Way/Relocation Mitigation*.

Disc Drive

Impacts along Disc Drive under all build alternatives occur along both sides of the roadway where small portions of the commercial properties would be acquired to accommodate the widening of Disc Drive from Pyramid Highway to Vista Boulevard. This includes the commercial retail centers of the Sparks Galleria and the Spanish Springs Shopping Center. At Spanish Springs Shopping Center there would be no relocation of any businesses, changes in access or parking impacts; however, there would be impacts to areas of landscaping. Also impacted by the widening of Disc Drive are the two large open parcels located west of and adjacent to Sparks Boulevard near Disc Drive. These parcels, currently zoned for agricultural and open space use, would require partial acquisitions along the Disc Drive alignment.



Property Values

Each of the build alternatives likely would affect property values in different ways. For residential properties, a decrease in value near acquisitions and partial acquisitions could occur due to the encroachment of the project right-of-way, the reduction in property square footage, and the increase in traffic noise along the new facility. Beneficial impacts to residential property values could result from increased accessibility, less traffic on residential streets and overall congestion relief in the Study Area. For commercial properties nearest to acquisitions and those being partially acquired, an increase in property values may occur due to the increased exposure and decreased traffic congestion along the local streets leading to better access because of the relief the new facility may provide. In addition, those commercial properties located within easy access from a new access point could result in an increase in property values. However, a decrease in values may occur to those businesses farther from the impacted properties due to the loss of traffic and loss of visibility because motorists that once traveled the local streets may instead use the new facility.

Alternative 1

Right-of-way impacts from the build alternatives would vary along the proposed US 395 Connector through Sun Valley and along Pyramid Highway from Disc Drive to Sparks Boulevard.

The full and partial parcel acquisitions for Alternative 1, shown in Table 3-2, would require acquisition of approximately 939 acres of right-of-way. Of the 939 acres, approximately 381 acres of BLM land would be acquired. In addition, these acquisitions would result in the potential relocation of an estimated 188 single-family residences, 22 mobile homes, and 12 commercial businesses shown in Figure 3-15.

The US 395 Connector would be constructed as a new six-lane freeway over Sun Valley Boulevard from US 395 to Pyramid Highway. This alternative would follow the northern option over Sun Valley Boulevard and the off alignment connecting to Pyramid Highway. It also includes an interchange at Sun Valley Boulevard. In Sun Valley, Alternative 1 would result in impacts to several residential communities and commercial properties. All of the residential impacts would involve single-family residences, including many manufactured homes. Commercial impacts would be to service stations, food marts, and fast-food chain restaurants.

This alternative would require Sun Valley Boulevard to be widened from 1st Avenue to El Rancho/Dandini Boulevard to accommodate the new interchange with left and right

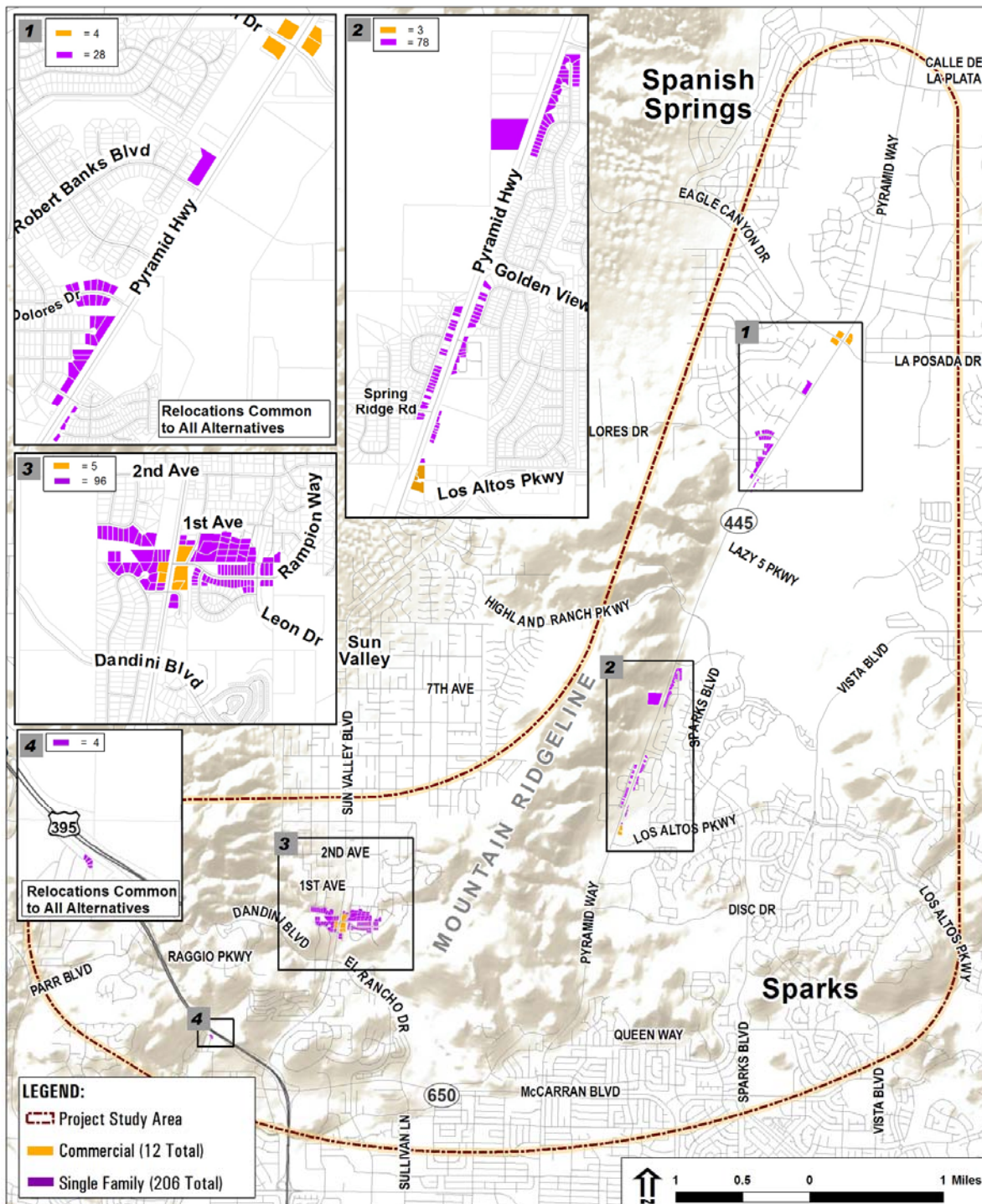


Figure 3-15. Alternative 1 Relocations



turn lanes at the interchange and at other local streets. This widening and subsequent loss of access to businesses that front Sun Valley Boulevard would impact properties north and south of the new US 395 Connector. This would also result in the removal of left turn lanes at the Rampion Way/Sun Valley Boulevard intersection and require new connections through the extension of Leon Drive across Franks Lane to East 1st Avenue. This new connection would result in additional property impacts beyond the loss of the Rampion Way turning point.

The widening of existing Pyramid Highway from four lanes to six lanes between Disc Drive and Los Alto Parkway and the construction of bicycle lanes and sidewalks extending to Sparks Boulevard would result in additional right-of-way impacts. The Sparks Galleria east of Pyramid Highway and the Wal-Mart Supercenter west of Pyramid Highway would be impacted through partial property acquisitions. Alternative 1 would impact the mobile home parks of Oasis Mobile Estates and Blue Gem Estates and require potential relocation of 16 residential units. It would also affect the Legacy Christian School and the Summit Christian School, both of which may have impacts to parking and access. These impacts would be minor requiring, at worst, reconfiguration of the parking lots so that no parking spaces are lost.

A water quantity/quality basin could affect the planned Sparks Justice Center, proposed for the northeast corner of the Pyramid Highway and Disk Drive intersection. The Study team will revisit the design of these basins during the Final EIS preparation and continue to coordinate with the City of Sparks on the matter.

This property was part of a land transfer from the BLM to the City of Sparks, and the transfer agreement outlines applicable requirements if changes to the proposed land uses occur. Therefore, if the final design would affect the Justice Center facility, RTC and NDOT will coordinate with the BLM on these requirements and any implications to the transfer agreement.

Alternative 2

Full and partial parcel acquisitions from Alternative 2 would result in an estimated impact of 849 acres. Of the 849 acres, approximately 271 acres of BLM land would be appropriated. In addition, these acquisitions would result in the potential relocation of an estimated 172 single-family residences, 2 multifamily residences (120 apartments), 34 mobile homes, and 26 commercial businesses shown in Figure 3-16.

Alternative 2 would follow the southern alignment over Sun Valley Boulevard and the on alignment connecting to Pyramid Highway. It would include a new interchange at Sun Valley Boulevard. In Sun Valley, Alternative 2 would impact single-family and multifamily residential communities, including many manufactured homes, and commercial properties. Commercial impacts would include full acquisition of the Rainbow Market service station and Kid City Daycare.

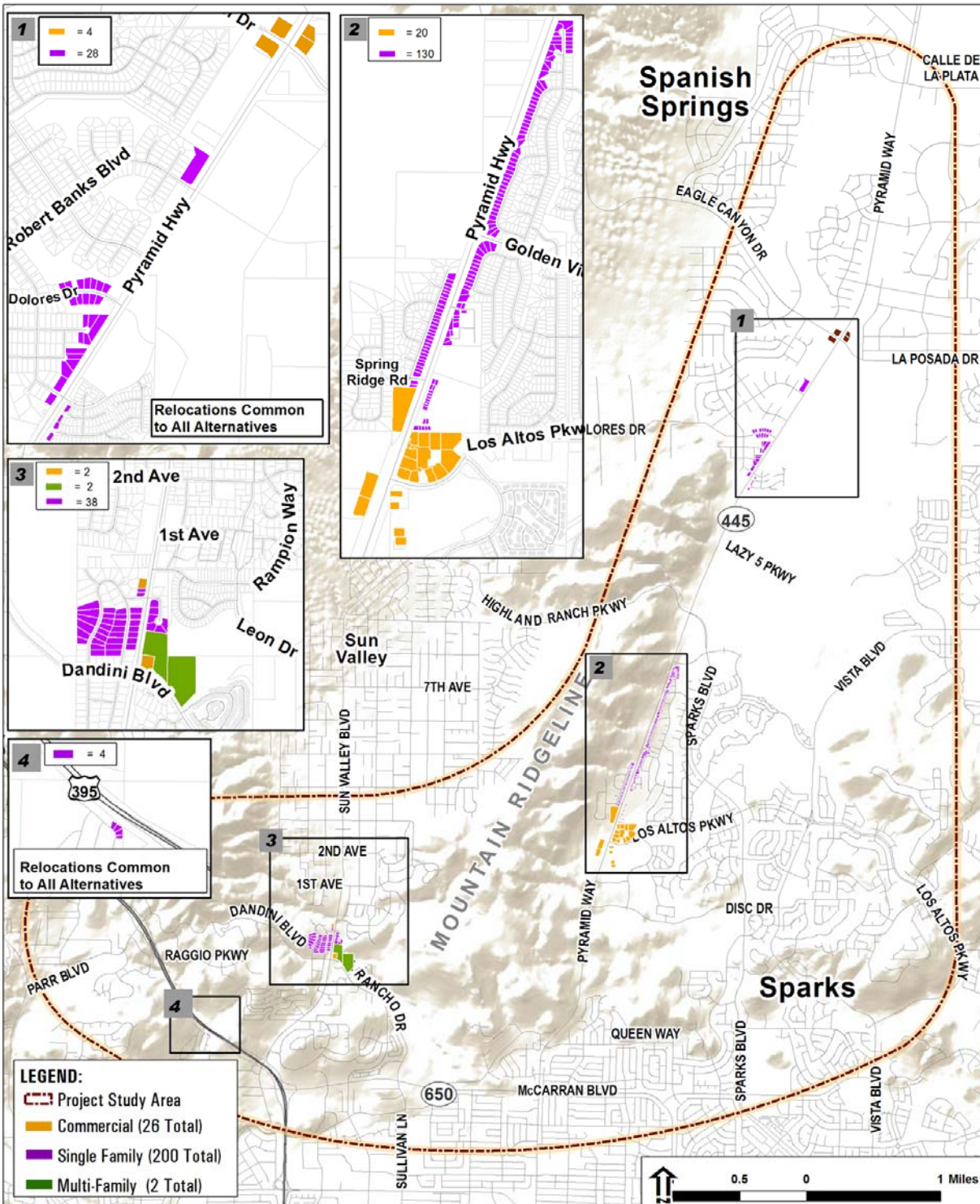


Figure 3-16. Alternative 2 Relocations



This alternative would require widening of Sun Valley Boulevard and removal of left turn lanes at the Rampion Way intersection as described under Alternative 1. In addition, this alignment through Sun Valley would displace all 11 structures on the western portion of the Sierra Point Apartments complex at Sun Valley Boulevard and El Rancho Drive and 5 of the 9 structures on the eastern portion of the complex.

Right-of way impacts along the southern portion of Pyramid Highway between Disc Drive and Sparks Boulevard are higher than those resulting from Alternative 1 because of the addition of frontage roads located parallel to the freeway alignment. Commercial shopping areas, including the Sparks Galleria and parking for the Wal-Mart Supercenter, would be directly impacted by Alternative 2. Impacts to the Sparks Galleria would result in the potential relocation of two large anchor stores – Best Buy and Michaels. The mobile home parks of Oasis Mobile Estates and Blue Gem Estates would each be impacted to a greater degree compared to Alternative 1, requiring the potential relocation of residential units and the reconstruction of driveway accesses.

The Legacy Christian School would potentially be relocated. Parking at the Summit Christian Church would also be impacted; however, the access to the church would remain from Golden View Drive.

Alternative 3

Full and partial parcel acquisitions from Alternative would result in an estimated impact of 973 acres. Of the 973 acres, approximately 363 acres of BLM land would be appropriated. In addition, these acquisitions would result in the potential relocation of an estimated 127 single-family residences, 2 multifamily residences (120 apartments), 22 mobile homes, and 7 commercial businesses shown in Figure 3-17.

For the US 395 Connector, Alternative 3 would impact a larger area of open, undeveloped land located on the hills west of Sun Valley due to the placement of the interchange west of Sun Valley Boulevard. This interchange west of Sun Valley would connect to West 1st Avenue near Lois Allen Elementary School; however, retaining walls would likely prevent impacts to the school property.

Alternative 3 would follow the southern alignment over Sun Valley Boulevard and follow the ridge between the Sun Valley and Spanish Springs valleys before connecting to Pyramid Highway. Alternative 3 would result in impacts to single-family and multifamily residential communities, including many manufactured homes, and commercial properties. The alignment would impact the Sierra Point Apartments complex in a similar manner as Alternative 2. A total of 16 of the 20 buildings, including all those along Sun Valley Boulevard, and 5 of the 9 buildings on El Rancho Drive would be acquired, requiring potential relocation of all of the residences in those units. This

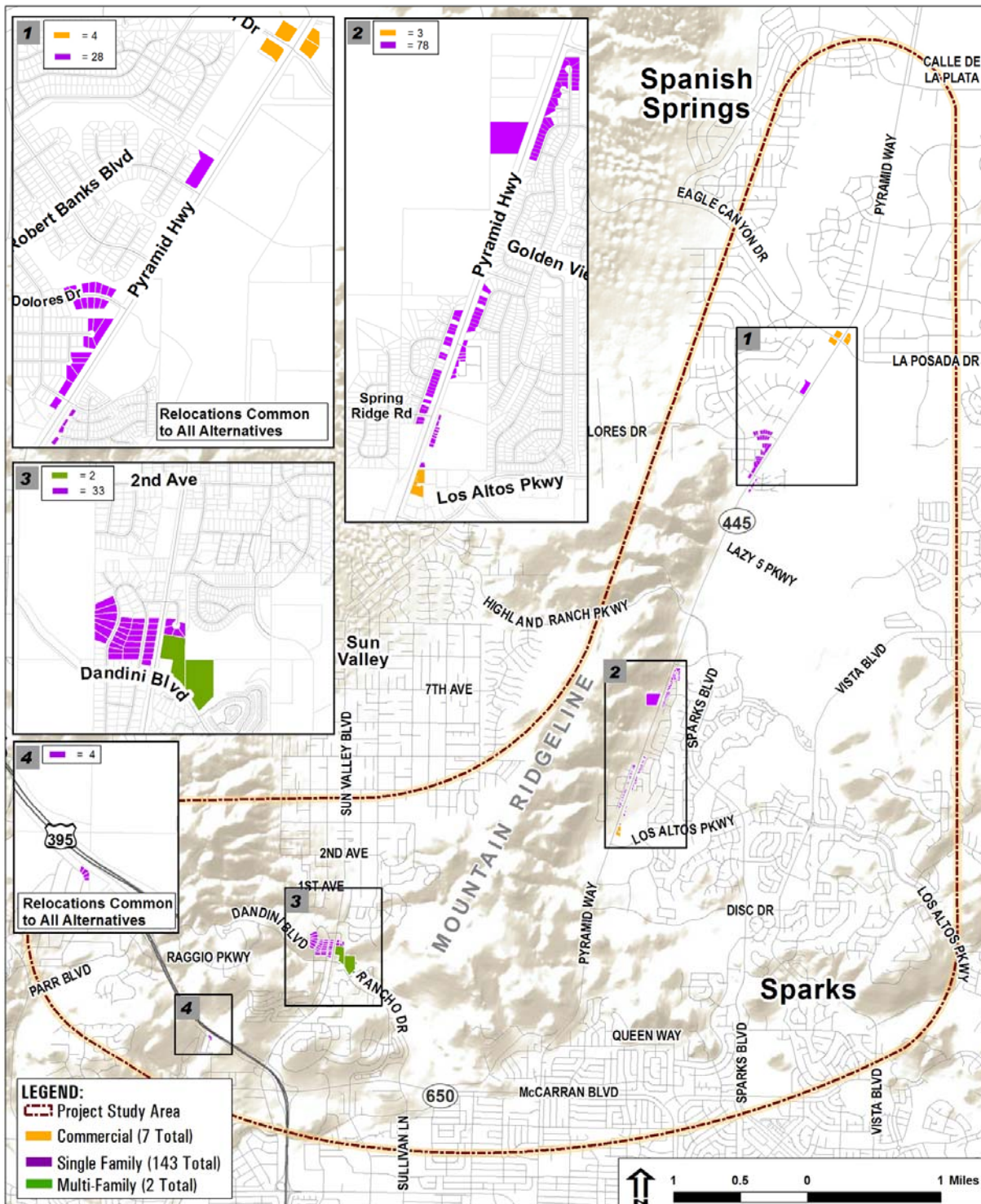


Figure 3-17. Alternative 3 Relocations



would result in the potential relocation of approximately 120 households. Commercial impacts would be to the Rainbow Market service station and Kid City Daycare. Similar to Alternative 1, Alternative 3 would require acquisition of BLM land and partial acquisition of existing and zoned residential properties east of Sun Valley.

Alternative 3 would result in similar impacts as Alternative 1 from the widening of existing Pyramid Highway to the commercial developments, residences, the Christian Legacy School and the Summit Christian Church.

A water quantity/quality basin could affect the planned Sparks Justice Center, proposed for the northeast corner of the Pyramid Highway and Disk Drive intersection. The Study team will revisit the design of these basins during the Final EIS preparation and continue to coordinate with the City of Sparks on the matter.

This property was part of a land transfer from the BLM to the City of Sparks, and the transfer agreement outlines applicable requirements if changes to the proposed land uses occur. Therefore, if the final design would affect the Justice Center facility, RTC and NDOT will coordinate with the BLM on these requirements and any implications to the transfer agreement.

Alternative 4

Full and partial parcel acquisitions from Alternative 4 would result in an estimated impact of 866 acres. Of the 866 acres, approximately 271 acres of BLM land would be appropriated. In addition, these acquisitions would result in the potential relocation of an estimated 220 single-family residences, 34 mobile homes, and 28 commercial businesses shown in Figure 3-18.

Similar to Alternative 1, additional impacts are incurred as a result of the loss of left turn lanes at the Rampion Way/Sun Valley Boulevard intersection. The US 395 Connector would be constructed over Sun Valley Boulevard utilizing the northern option. Impacts to several residential communities and commercial properties would result from this alternative. All of the residential impacts would be to single-family residents, including many manufactured homes. Commercial impacts would be to service stations, food marts, and fast-food chain restaurants.

Impacts along Pyramid Highway between Disc Drive and Sparks Boulevard under Alternative 4 are identical to those under Alternative 2.

Impact Summary

Alternative 4 would require the highest number of business relocations. However, Alternative 2 would have the highest number of potential residential unit or family relocations, due to the impacts to Sierra Point apartments.

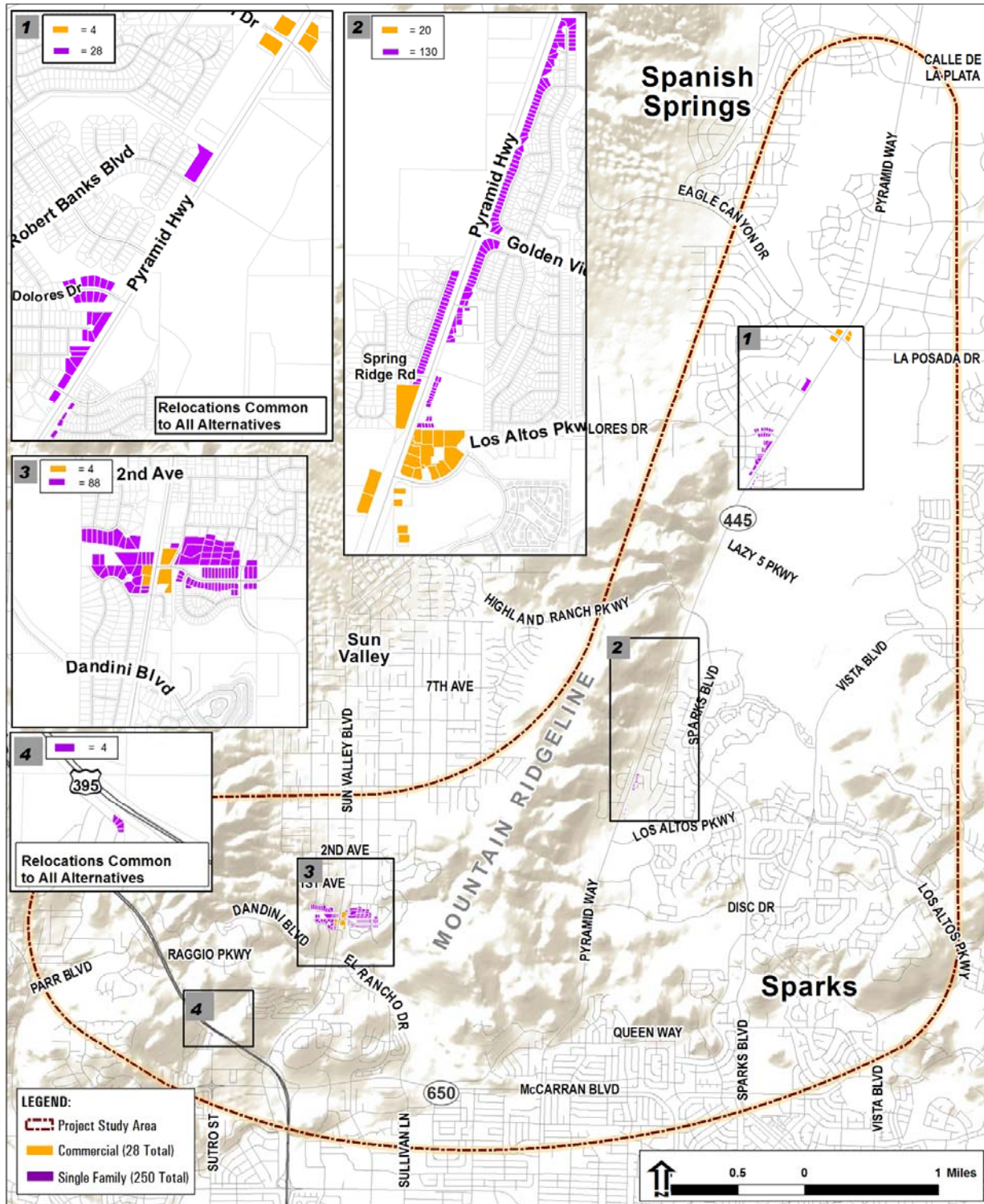


Figure 3-18. Alternative 4 Relocations



Table 3-15 summarizes the total full and partial property impacts by build alternative.

Table 3-15. Parcel Impacts by Build Alternative

Impact	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Residential Parcels Fully Acquired	210	213	169	245
Residential Parcels Partially Acquired	131	125	123	115
Commercial and Industrial Parcels Fully Acquired	35	40	19	50
Commercial and Industrial Parcels Partially Acquired	78	78	75	72
Open Space/Other Acquisitions Fully Acquired	5	6	5	6
Open Space/Other Acquisitions Partially Acquired	22	19	22	20
Total Impacted Parcels	481	481	413	508

Table 3-16 summarizes total potential relocations by build alternative.

Table 3-16. Summary of Relocations by Build Alternatives

Type	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Single-family Residence	188	172	127	220
Mobile Home	22	34	22	34
Multi-Family Units	0	2*	2*	0
Commercial Business	12	26	7	28
Total Relocations	222	234	158	282

*Two units contain an estimated 120 apartments.

3.5.4 Right-of-Way/Relocation Mitigation

The Study team sought to avoid and minimize effects to private and public property, particularly those requiring relocations, throughout the alternatives development and screening process. For the four build alternatives, the Study team has proposed several retaining walls to eliminate or minimize right-of-way impacts. Section 2.4.3.5 *Retaining Walls and Sound Walls* has a list of these walls and their purpose. The final design process will involve further design refinements to avoid and minimize impacts.

Any right-of-way acquisition will comply with the Uniform Relocation Assistance and Real Property Acquisitions Policies Act of 1970, as amended. All reasonable opportunities to avoid relocations and minimize the acquisition or impacts to private property will be taken during the final design stage.

Before or during final design, RTC and/or NDOT will prepare a comprehensive relocation/acquisition plan to ensure availability of relocation properties. The plan will be administered by NDOT and adhere to NDOT right-of-way requirements. Refer to the *Social Considerations, Right-of-Way/Relocation Impacts, and Environmental Justice Technical Report* (RTC, 2012) prepared for this Study for details.

Any right-of-way acquisition will comply with the Uniform Relocation Assistance and Real Property Acquisitions Policies Act of 1970, as amended (URA) Section 205(a). The purpose of the Uniform Act is to provide uniform and equitable treatment of all persons displaced from their homes, businesses, or farms and establishes criteria for proper acquisition and relocation benefit impacts. The Uniform Act requires that persons to be displaced be provided with information they will need to minimize the disruption of moving and maximize the likelihood of a successful relocation. Relocation assistance payments are designed to compensate displaced persons for costs that are the result of acquisition of the property upon which they reside. The criteria contained in Nevada Revised Statutes Section 342 also provide guidance that is applicable to potential relocations within the Study Area by outlining specific services and assistance that must be provided by the governing body.

All reasonable opportunities to avoid relocations and minimize the acquisition or impacts to private property will be taken during the final design stage. Also, the Lead Agencies will make all effort to relocate affected dwelling units and businesses within or near the community that they currently reside. All efforts will be made so that those displaced will be afforded with properties that are comparable in size, safety, sanitary conditions, and overall decency and functionality with those being acquired.

In addition to the Federal Uniform Relocation Assistance and Real Property Acquisitions Policies Act of 1970, as amended, the Lead Agencies may offer benefits and assistance to affected businesses and residents and to help make sure relocations occur in a timely manner. Also, at the beginning of the right-of-way acquisition process, investigation of the special needs of all parties being relocated or selling a portion of their land will be provided with the goal being to accommodate these special needs, as required.

As discussed in Section 3.3.6, due to the current housing situation, some homeowners have negative equity in their homes. The Uniform Act was passed to ensure that displaced persons “shall not suffer disproportionate injuries as a result of programs and projects designed for the benefit of the public as a whole and to minimize the hardship of displacement on such persons” (42USC 4621(b)). FHWA has instituted a temporary Programmatic Waiver of 49 CFR 24.401(b)(1) – Calculation of Replacement Housing Payment for Negative Equity (FHWA April 7, 2009; waiver expiration extended through December 31, 2014) that allows NDOT to acquire homes with negative equity without reducing other provided benefits. Because the economic downturn has caused a sharp decline in Study Area property values, many affected home owners have negative



equity. As part of a larger compensation package, the FHWA waiver would help relieve the debt of relocated homeowners caused by property value declines.

If a build alternative is selected as the preferred alternative, any overlap of the preferred alternative on public right-of-way would be coordinated with the utility owners, and the preferred alternative alignment located on public land would be modified during final design to minimize adverse effects to utility lines in these locations.

Because BLM land that would be affected by the proposed action is not actively grazed, no effects to grazing allotments are anticipated. Effects to any grazing allotment and/or permits and necessary mitigation measures would be further investigated during later stages of project development, including Final EIS preparation, final design, and the right-of-way process.

If valid mineral claims have occurred within the preferred alternative alignment (if a build alternative is selected as the preferred alternative) on the date of the Letter of Consent appropriating the right-of-way, NDOT will obtain permission as may be necessary from claim holders to account for such claims within the right-of-way.

3.5.4.1 Tribal Trust Land Acquisition Requirements

As discussed in Impacts Common to All Build Alternatives, the build alternatives would require acquisition on property held in trust for the RSIC, which is a cooperating agency for this project. Most tribal land is held in trust by the federal government under the Department of Bureau of Indian Affairs (BIA) and is regulated under 25 CFR Chapter 1 Part 169 – Rights-of-Way Over Indian Lands. With rare exceptions, tribal land cannot be purchased in fee and cannot be condemned. The BIA approves transactions involving Indian lands and would determine if the land is held in “Trust or Fee.” In addition, BIA may require an Environmental Report that may not be required by FHWA or NDOT.

Each tribe functions as a sovereign nation and has its own tribal council and rules that may vary from tribe to tribe. For rights-of-way held in trust, a “Tribal Resolution” would be required from the specific tribal council governing that land and a Letter of Decision would be required from BIA.

The Act of February 5, 1948 (62 Stat. 17), 25 USC 323-328, is the primary authority for granting right-of-way across Indian lands. Prior written approval from the tribe is required before rights-of-way over and across tribal land is granted and before such land can be surveyed (25 CFR 169.3(a)).

BIA may also approve owner granted rights-of-way pursuant to the Indian Land Consolidation Act (ILCA), (November 7, 2000, 25 USC Chapter 24 2218 Section 219). The grant is issued as an easement. A separate Grant of Easement (GOE) is required for each ownership of land.

BIA would approve initiation of the appraisal process once a “Title Status Report,” “Tribal Resolution,” and set of right-of-way plans have been received. Additional information can be found in the *BIA Procedural Handbook Grants of Easement for Right-of-Way on Indian Lands*.

The Study team has coordinated with RSIC and BIA since the onset of the EIS process. Both agencies serve as participating agencies to the EIS. The Final EIS will provide further details on the proposed acquisition of the trust land.

3.5.4.2 Relocation Potential Assessment

The Study team assessed the availability for suitable replacement housing and property for residential and business relocations. This assessment is intended for use in the preliminary planning for the orderly acquisition of property and identification of relocation assistance needs. Future work to identify specific locations for property relocation will be conducted later in the project development process.

Potential relocations of residences and commercial businesses would occur in three distinct areas. Potential relocations in two of the three areas would differ between alternatives, while the third area is located where proposed elements are similar among all build alternatives. In the two areas that would differ, the preliminary assessment looked at the build alternative that would result in the highest number of potential relocations. The three areas are described below and shown on Figure 3-9 through Figure 3-12.

- **Area 1.** Includes those relocations in the approximate vicinity between the La Posada Drive/Pyramid Highway intersection and the Tierra del Sol Parkway/Pyramid Highway.
- **Area 2.** Includes those relocations in the approximate vicinity between Kiley Parkway and Shoppers Way.
- **Area 3.** Includes those relocations in south Sun Valley between Dandini Boulevard and 1st Avenue.

Residential

Determining availability of suitable properties for relocation involved a preliminary search for single-family homes and commercial properties within the areas where potential relocations are expected to occur under the build alternatives. This involved dividing the properties identified as potentially requiring relocation into categories based on size. An online search was then conducted. Table 3-17 displays the criteria and results of that search. Also, a search was conducted for smaller, short-term rentals in the vicinity of Sun Valley similar to those that would be displaced from the Sierra Pointe Apartments. In addition to the remaining units at Sierra Pointe, availability of this class



of rentals was determined to be high in the vicinity of Sun Valley. Table 3-17 shows the criteria and results of that search.

Table 3-17. Number of Potential Residential Relocations and Comparable Properties by Area

Location	Size Category	Number of Potential Relocations	Number of Available Comparable Properties Found
Residential Comparables for Sale			
Area 1	< 1200 sq. ft.	15	23
	1201-1600 sq. ft.	13	30
Area 2	< 1200 sq. ft.	26	28
	1201-1600 sq. ft.	73	111
	1601 – 2100 sq. ft.	3	11
Area 3	< 1200 sq. ft.	27	37
	1201-1600 sq. ft.	29	36
	1601 – 2100 sq. ft.	9	25
Residential Comparables for Rent			
Areas 1, 2, & 3	< 1200 sq. ft.	68	139
	1201-1600 sq. ft.	115	93
	1601-2100 sq. ft.	12	67

Mobile Home Relocation

As shown Table 3-16, many of the potential relocations would involve mobile or manufactured homes. Manufactured homes in the state of Nevada are considered personal property unless they have been classified as real property. Personal property is generally defined as moveable items not permanently affixed to and made part of the real estate. Mobile home occupants may be eligible for moving expenses of personal property. A mobile/manufactured home is considered real property if it is permanently affixed to land that is owned by the owner of the mobile or manufactured home or leased by the owner of the mobile or manufactured home, which is being financed in accordance with the appropriate financial institutions. A mobile/manufactured home classified as real property would be appraised and acquired under the acquisition process. The occupants would be eligible for the same moving and replacement housing benefits as occupants of residential dwellings. The *NDOT Right-of-Way Manual* (NDOT, 2011) provides further information regarding moving and replacement expenses. Please refer to the *Social Considerations, Right-of-Way/Relocation Impacts, and Environmental Justice Technical Report*, Section 4.4.2.2 for more information.

Available sites for mobile home relocation exist in the vicinity of potential relocations. Almost the entire community of Sun Valley allows mobile homes on existing lots with many currently vacant lots throughout the community. Also, several mobile home parks are located in Sun Valley and Reno just south of Sun Valley. These include the Reno Cascade Mobile Home Community, Sun Villa, the Silver Crown Mobile Home Park, and the Silverada Estates, among others.

Commercial

Determining availability of suitable properties for commercial relocation involved an online search for commercial properties for lease within the areas where potential relocations are expected to occur under the build alternatives. Businesses were grouped together based solely on the square footage of the existing space that is currently occupied. Table 3-18 displays the criteria and results of the commercial property search. The information provided below regarding comparable properties available for relocation does not account for specific considerations such as zoning restrictions which may prevent particular businesses from moving to some of the identified sites.

Table 3-18. Number of Potential Business Relocations and Comparable Properties by Area

Location	Size Category	Number of Potential Businesses Relocated	Number of Available Comparable Properties Found
Area 1	< 5000 sq. ft.	9	12
	> 5000 sq. ft.	2	5
Area 2	< 5000 sq. ft.	22	29
	> 5000 sq. ft.	8	15
Area 3	< 5000 sq. ft.	4	24
	> 5000 sq. ft.	2	5

Suitable Replacement Property Summary

The results of the analysis of availability of suitable replacement property indicate that the Study Area contains adequate property to accommodate residential and business relocations. This finding is based on the initial analysis—the results of which will be refined in later phases of the project.

3.6 TRANSPORTATION

This section compares the impacts of the No-Action Alternative and each of the four build alternatives on each mode of the transportation system.

3.6.1 Methods

The Study team used accepted transportation analysis methods to determine transportation impacts and benefits of each alternative and used the most recent data available at the time the transportation analyses were performed.

Since the traffic analysis presented in this Draft EIS was conducted in 2011, the RTC has been preparing an updated regional travel demand model to generate information used in the new 2035 Regional Transportation Plan (RTP). The new model uses population forecasts developed in 2012 by Washoe County and approved by the Regional Planning Commission. As of this writing, the model only provides region-wide travel data - and not project-level travel information. Region-wide travel data identifies general areas



1 within the overall model with high levels of congestion, while project-level modeling
2 provides more information for specific analysis at the project level. Additional
3 refinements are currently being conducted by RTC to provide model results at the
4 project level, but these are not anticipated to be completed until late 2013. Therefore, the
5 project-specific traffic model data used in the traffic analysis in this Draft EIS reflects the
6 latest planning assumptions.

7
8 Despite its current limitations, the model identifies the areas of the highest existing and
9 future traffic congestion. If no improvements are made, significant traffic congestion
10 will occur in the Pyramid Highway corridor, the US 395 corridor, northeast McCarran
11 Boulevard, southeast McCarran Boulevard, and Sun Valley Boulevard. The major
12 projects included in the 2035 RTP, such as the Pyramid-US 395 Connector, address the
13 areas of highest traffic congestion. However, in the past, the Sun Valley community
14 expressed the preference for the RTP to not include Sun Valley Boulevard capacity
15 improvements; therefore, such improvements are not included in the current RTP. The
16 travel demand model reflects an improved level of service (LOS) after implementation
17 of these major projects. Therefore, this region-wide information from the new travel
18 demand model would not alter the basic purpose and need of the Pyramid Highway
19 and US 395 Connector project. When the new project-level model results are available,
20 the RTC will re-evaluate and update all project studies, reports, and findings as
21 necessary that use traffic data derived from the project-level model, and will present the
22 updated information in the Final EIS. The conformity determination made for the project
23 will be based on the new model data. For the Final EIS, the Study team will determine
24 whether updates to transportation data are needed.

25
26 The Study team determined existing traffic conditions, including regional and Study
27 Area demographics, traffic counts, roadway characteristics, transit services, and safety
28 conditions from a variety of sources.

29
30 The RTC Regional Travel Demand Model provided traffic and transit forecasts based on
31 the adopted RTC Interim Consensus Forecast (ICF). The land use forecasts upon which
32 the ICF is based do not factor in future roadway projects, such as the Pyramid Highway
33 and US 395 Connection improvements. The model produced 2030 peak period and daily
34 travel demand forecasts for the No-Action Alternative and build alternatives. Because
35 the planning horizon design year for the Study is 2035, growth rates from the 2030
36 model were used to extrapolate 2035 volumes based on 2030 forecasts for traffic
37 operations analysis. Analyses were performed separately for each alternative, including
38 the No-Action Alternative.

39
40 While the model illustrates the amount of future regional traffic at specific road segment
41 locations, it may or may not accurately estimate vehicle volumes. For this reason, direct
42 use of model output for traffic operational analysis is not usually recommended. Rather,
43 it is standard industry practice to apply adjustments to travel demand model output
44 prior to conducting a traffic operations analysis. These adjustments can include traffic

reasonableness checks, growth rate adjustments, traffic balancing, and other adjustments needed to produce reasonable traffic forecasts. This is the method the Study team applied to the Study's traffic operations analysis. The primary reference for traffic model volume adjustments is the *National Cooperative Highway Research Program Report (NCHRP) 255: Highway Traffic Data for Urbanized Area Project Planning and Design* (1982).

Traffic operations analysis includes the application of the CORSIM microsimulation modeling software developed by FHWA for freeways. Intersection analyses were performed using the Highway Capacity Manual (HCM) methodology in the Synchro traffic analysis software package. The *Pyramid Highway US 395 Connection Traffic Report* (RTC 2011) provides greater detail about the methods used to forecast future traffic conditions for each alternative.

3.6.2 Existing Conditions

Existing traffic conditions are presented in Chapter 1.0 *Purpose and Need*. Several segments along Pyramid are at or near capacity, and McCarran Boulevard is experiencing congestion.

3.6.2.1 Safety Conditions

Existing safety conditions are summarized in Chapter 1.0 *Purpose and Need*. Crash data indicate that the existing safety issues on the Pyramid Highway corridor are directly tied to worsening congestion problems and will likely continue to degrade without improvements.

3.6.2.2 Transit Services

The Study Area is generally underserved by transit. The Sun Valley area is served by two bus lines—Routes 5 and 15—that operate throughout the day and carry over 800,000 riders per year. Otherwise, bus service does not extend north of McCarran Boulevard in the Study Area. Figure 3-19 shows the existing RTC bus service in the Study Area. For routes that provide service within the Study Area, the figure shows the annual number of riders and the annual revenue-hours, which is a measure of the amount of bus service provided.

3.6.3 Transportation Impacts

The following sections use several measures of effectiveness to assess transportation impacts and benefits of each build alternative and its various components. These include regional measures, such as vehicle miles traveled, mode choice opportunities, and bicycle and pedestrian mobility, as well as more localized measures, such as intersection improvements, accessibility and connectivity, safety enhancements, and construction impacts. Some benefits and impacts are common to all of the build alternatives and are summarized for clarity; the differences between build alternatives are described in more detail.



1

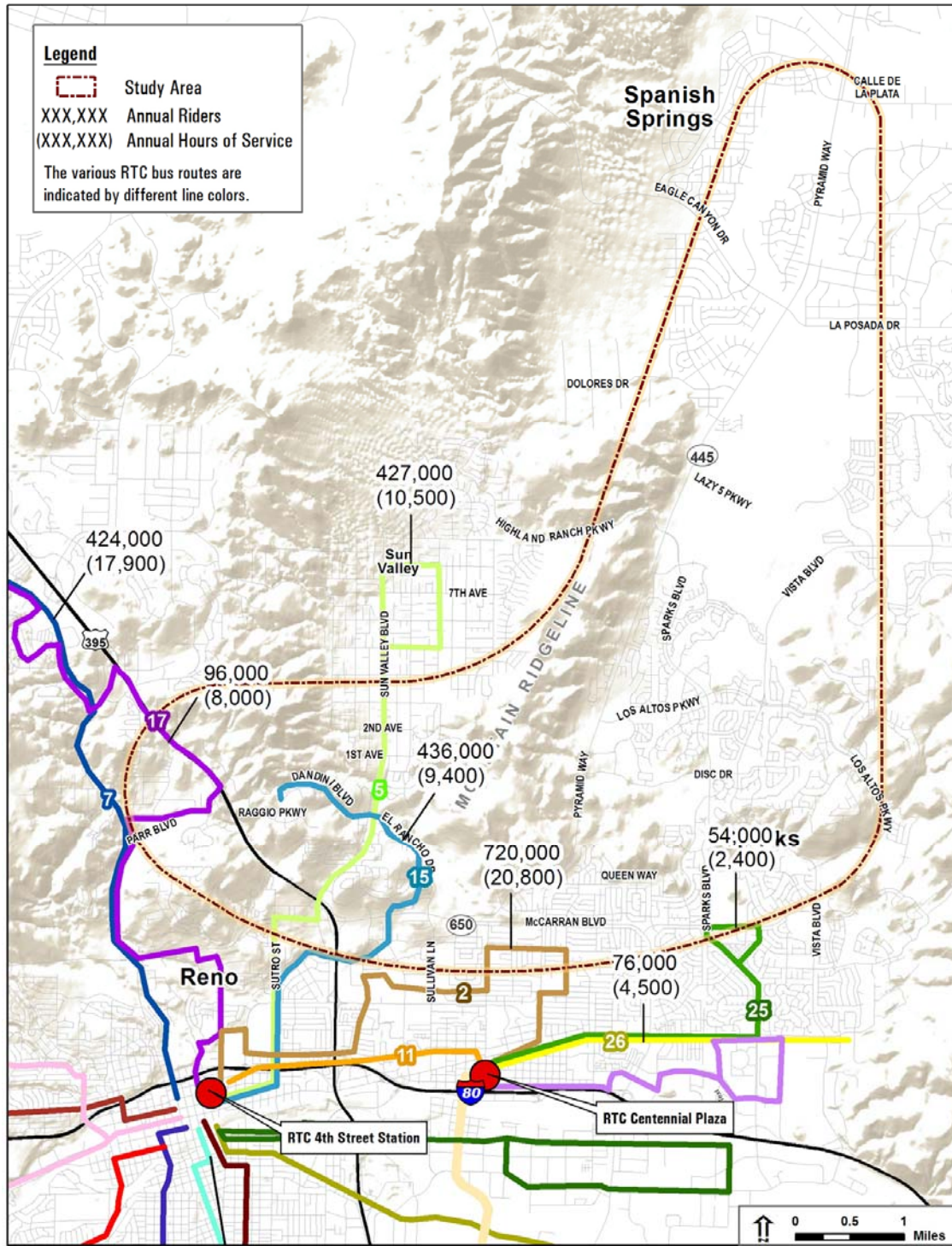


Figure 3-19. Existing Transit Service and Ridership

2

3.6.3.1 *Transportation Plans and Policies*

As described in detail in Chapter 1.0 *Purpose and Need*, several agencies have long identified the need for improvements to the Pyramid corridor and a connection to US 395. RTC's 2030 Regional Transportation Plan includes the Pyramid Highway and US 395 Connection as a fully funded project. Improvements are also identified in the *Washoe County Comprehensive Plan* and *Washoe County's Spanish Springs Area Plan*.

No-Action Alternative

The No-Action Alternative and its discrete improvements would not be compatible with regional transportation plans and policies because it would not provide improvements along Pyramid Highway, east-west connectivity, or additional multimodal opportunities for travelers in the region.

Build Alternatives

Each of the build alternatives would be compatible with regional transportation plans and policies. All of the build alternatives would provide improvements to Pyramid Highway, east-west connectivity, and additional multimodal options for travelers in the Study Area.

3.6.3.2 *Vehicle Miles Traveled and Vehicle Hours Traveled*

The RTC Travel Demand Model from May 2010 provided regional statistics for each of the build alternatives, such as Vehicle-Miles-Traveled (VMT) and Vehicle-Hours-Traveled (VHT). These statistics provide a measure of the amount of travel and overall mobility within the region. The ratio of VMT to VHT is average speed. Changes in average speed among the alternatives can show the relative impact of the roadway improvements.

No-Action Alternative

Because of the anticipated growth in development described in Chapter 1.0 *Purpose and Need*, the No-Action Alternative is projected to have an increase in VMT and VHT compared to existing conditions. In the RTC region, daily VMT in 2008 is 10,310,000; daily VHT is 260,000. In the 2030 No-Action Alternative, VMT is projected to increase to 17,705,000 per day and VHT to increase to 435,000 per day, with an average daily speed in the region of 40.7 miles per hour (mph).

Build Alternatives

Each of the build alternatives is projected to result in both an increase in total regional VMT and a decrease in VHT compared to the No-Action Alternative. This is the result of these two travel pattern changes:

- The increase in roadway capacity would allow motorists to make longer trips with their time, increasing VMT.



- Even though trips would become longer in mileage, the increased capacity and shift of trips from congested arterials to freeway facilities would result in less congestion and faster travel speeds, reducing VHT.

The build alternatives would increase the amount of freeway VMT, relative to the No-Action Alternative. This would result in a slight decrease in freeway average speed. The build alternatives would result in a notable decrease in VMT on arterials, collectors, and other roadways. This would result in less congestion on these roads, which is reflected in about a 3 mph increase in average speed on arterials and other roadways, compared to the No-Action Alternative. Table 3-19 presents the results of the VMT and VHT analysis.

Table 3-19. Regional Daily VMT and VHT in 2030

Alternative	Road Type	VMT	Difference from No-Action	VHT	Difference from No-Action	Speed (mph)	Difference from No-Action (mph)
No-Action Alternative	Freeways	8,478,000		153,000		55.3	-
	Arterials & Other	9,227,000	-	282,000	-	32.7	
	Total	17,705,000	-	435,000	-	40.7	
Alternative 1	Freeways	8,998,000	520,000	164,000	11,000	54.9	(0.4)
	Arterials & Other	8,742,000	(485,000)	244,000	(38,000)	35.8	+ 3.1
	Total	17,740,000	35,000	408,000	(27,000)	43.5	+ 2.8
Alternative 2	Freeways	9,031,000	553,000	164,000	11,000	55.0	(0.3)
	Arterials & Other	8,710,000	(517,000)	244,000	(38,000)	35.7	+ 3.0
	Total	17,741,000	36,000	408,000	(27,000)	43.5	+ 2.8
Alternative 3	Freeways	8,975,000	497,000	164,000	11,000	54.6	(0.7)
	Arterials & Other	8,765,000	(462,000)	242,000	(40,000)	36.2	+ 3.5
	Total	17,740,000	35,000	406,000	(29,000)	43.7	+ 3.0
Alternative 4	Freeways	9,034,000	556,000	164,000	11,000	55.2	(0.1)
	Arterials & Other	8,713,000	(514,000)	243,000	(39,000)	35.9	+ 3.1
	Total	17,747,000	42,000	407,000	(28,000)	43.6	+ 2.9

VMT = Vehicle-Miles-Traveled

VHT = Vehicle-Hours-Traveled

Each of the build alternatives increases overall average speed for the region, indicating that the build alternatives successfully reduce congestion. The amount of average speed increase is similar for all of the alternatives, although important differences exist, as follows.

The location of the Sun Valley interchange along the US 395 Connector affects VMT and VHT. Alternatives 3 and 4 with the West Sun Valley interchange, an additional 6,000 VMT per day are projected; VHT is projected to be reduced by 1,400 per day. This is because a greater number of trips would use the US 395 Connector west to US 395 rather

than Sun Valley Boulevard and Clear Acre Lane if the interchange were located at Sun Valley Boulevard. Under Alternatives 1 and 2, locating the interchange at Sun Valley Boulevard would allow some trips destined to central Reno to use Clear Acre Lane, which is more direct but has comparatively slower speeds than the US 395 Connector.

The alignment of Pyramid Highway also would affect VMT and VHT. In general, Alternatives 1 and 3 with the off alignment and ridge alignment, respectively, would reduce VMT compared to Alternatives 2 and 4 with the on alignment. This is because the off alignments would provide a slightly shorter path than the on alignment to and from the US 395 Connector. For this same reason, Alternative 3 with the ridge alignment would have relatively less VMT than Alternative 1 with the off alignment.

With these small differences in mind, Alternative 4, which has the on alignment and West Sun Valley interchange, would have the highest total VMT in 2030 among the build alternatives. Alternatives 1 and 3, with the off alignment and ridge alignment, would each result in a smaller increase in total VMT, relative to Alternatives 2 and 4.

While each alternative would improve overall travel speeds, travel time savings for all trips would differ. Some trips are not as well served as others and travelers who make such trips would not experience as much benefit. The out-of-direction travel for some of these travelers using the US 395 Connector may deter some drivers from using the new facility, even though it might be faster. These drivers would continue to use more direct arterial routes but would still benefit from the improved facilities because these routes are projected to carry less traffic in the build alternatives.

3.6.3.3 Traffic Volumes

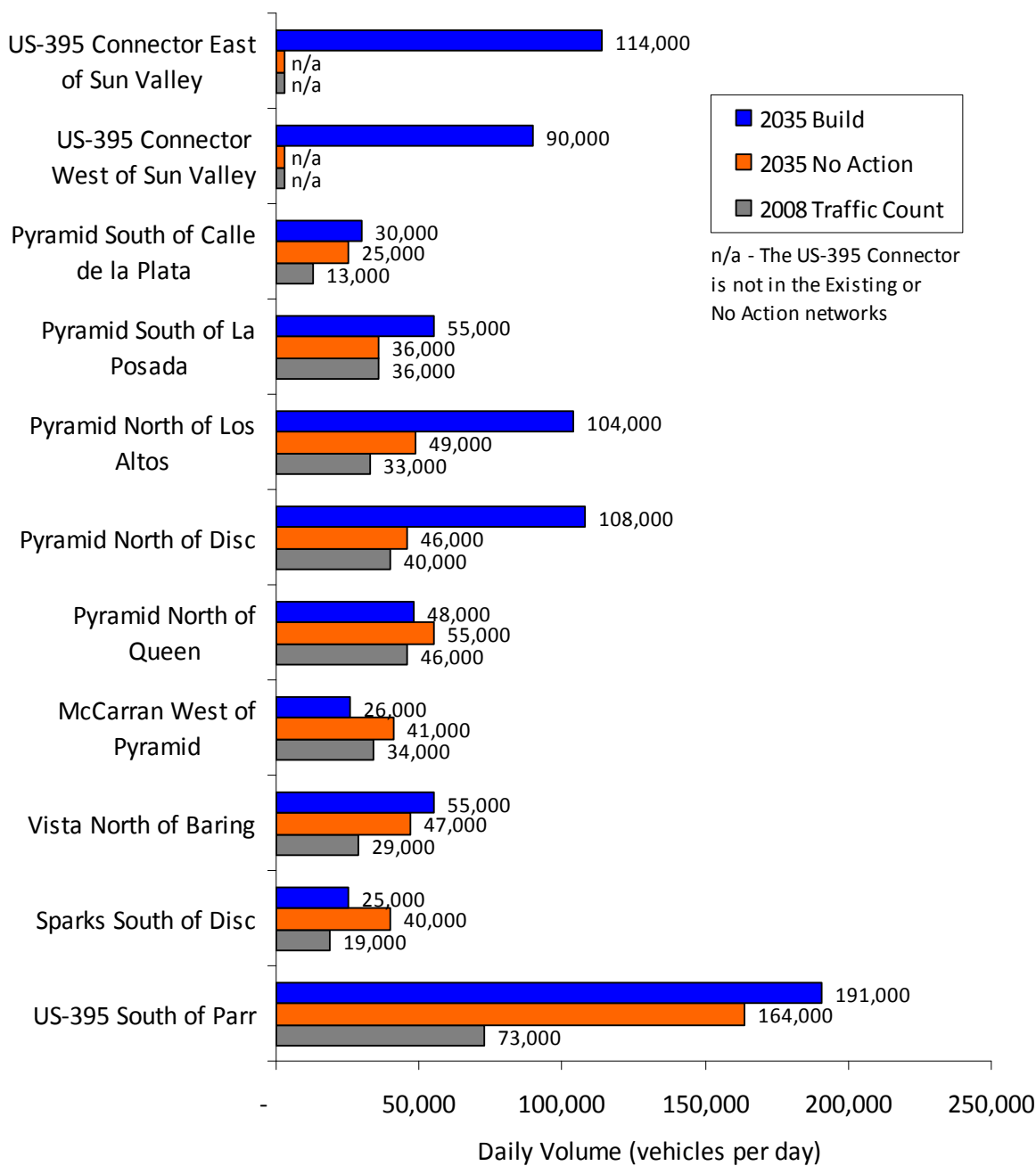
Traffic volumes illustrate the amount of demand for the roadways in the Study Area. The RTC Travel Demand Model provided the basis for the traffic volume forecasts. The *Pyramid Highway US 395 Connection Traffic Report* (RTC 2011) contains details on the forecasting process.

No-Action Alternative

The No-Action Alternative is forecasted to experience traffic volume growth throughout the corridor of between 0.0 and 3.5 percent annually between 2008 and 2035. Figure 3-20 displays daily traffic projections for key roadways in the Study Area.

Build Alternatives

Each of the build alternatives would attract traffic to the US 395 Connector and more traffic to the northern Pyramid corridor than the No-Action Alternative. The build alternatives would also reduce traffic on some key roadways in the Study Area, including McCarran Boulevard, Sparks Boulevard, and Pyramid Way south of Disc Drive. Growth rates for the build alternatives range between 1.3 percent and 6.1 percent



Source: 2008 traffic counts (study team); RTC Travel Demand Model

Figure 3-20. 2008 and 2035 Estimated Daily Volumes Along Representative Roadway Segments

along Pyramid Highway. The US 395 Connector would also result in a greater increase in traffic on US 395 than the No-Action Alternative.

Each of the build alternatives would attract similar levels of traffic to key roadways in the Study Area. Therefore, a “typical build traffic volume” that represents all build alternatives was used to present 2035 daily volume projections in comparison with the 2008 and the 2035 No-Action Alternative daily traffic volumes. The forecasts for 2035 peak hours of the individual build alternatives can be found in the Pyramid Highway US 395 Connection EIS Traffic Report. Figure 3-20 displays the results of the comparison.

Year 2035 served as the design year for this project, and all build alternatives were designed to accommodate 2035 traffic volumes. However, the Study Team also conducted a qualitative analysis of estimated traffic for 2040. Estimated 2040 volume to capacity ratios indicate that traffic volumes along the Pyramid Corridor, US 395 Connector, and US 395 north and south of the Connector would not exceed capacity in 2040. Therefore, all build alternatives are anticipated to accommodate traffic demand beyond the 2035 design year.

3.6.3.4 Traffic Operations

The analysis of traffic operations provides an estimate of future traffic congestion on roadway segments, as well as at key intersections in the Study Area. Conditions of congestion are described in terms of level of service (LOS). LOS can range from “A” through “F”, where LOS A indicates free flow conditions and LOS F describes conditions where traffic volumes exceed capacity. Figure 1-2 illustrates differences in LOS.

Levels of Service are measurements that characterize the quality of operational conditions within a traffic stream and their perception by motorists and passengers. The six levels of service are designated by the letters A through F, with A representing the best operating conditions (light, free-flow traffic) and F the worst (stop-and-go traffic). Roadways operating at Level of Service E are generally considered to be at or near capacity, at which point traffic flow is interrupted by minor disturbances.

No-Action Alternative

The No-Action Alternative is projected to result in an increase in congestion along the entire Pyramid Highway corridor. The projected increase in traffic demand would put additional pressure on the transportation system as a whole. Chapter 1.0 *Purpose and Need* describes the congested conditions that would result in the Study Area with the No-Action Alternative.

Build Alternatives

Each of the build alternatives is designed to meet operational design standards. Specifically, the build alternatives would meet traffic operations conditions as follows (please refer to the *Pyramid Highway US 395 Connection Traffic Report* [RTC 2011] for more detailed information):



- Result in LOS D or better along freeways.
- Result in minimum 50 mph freeway speeds.
- Result in ramp operations that do not generate queues or spillback that degrade operations on the freeway or major arterials.
- Result in LOS of E or better at Study Area intersections.

The traffic operations analyses generally indicate successful operations for all four build alternatives. However, notable differences at discrete segments/elements include:

Pyramid Alignment between Sparks Boulevard and Disc Drive. Along this segment, Alternatives 1, 2, and 4 that include alignments that veer away from Pyramid Highway perform better than Alternative 3 with the ridge alignment. With the ridge alignment, some demand to/from the north continues to use the existing Pyramid Highway, which results in slightly worse operations on the arterial section of Pyramid Highway between Disc Drive and Golden View Drive.

Sun Valley Interchange Location. The interchanges west of Sun Valley associated with Alternatives 3 and 4 positively affect traffic operations along Sun Valley Boulevard; however, they result in more traffic and LOS E conditions for the US 395 weaving segment between Sutro Street ramps and the US 395 Connector in both directions. Under Alternatives 1 and 2 with the Sun Valley Boulevard interchange, LOS along this US 395 weaving segment is D, but traffic volumes are at or near capacity along Sun Valley Boulevard. These traffic volumes on Sun Valley Boulevard are essentially the same with or without the project based on the travel demand model projections. Therefore, none of the build alternatives would adversely impact Sun Valley Boulevard traffic operations. Additionally, the adopted 2035 RTP shows the US 395 Connector constructed in phases, with the ramps to/from US 395 built prior to an interchange at Sun Valley Boulevard (or West Sun Valley Boulevard). Sun Valley Boulevard would not serve as a terminus to the US 395 Connector and, instead, the US 395 Connector would provide an alternative faster route to/from US 395 for trips from/destined to Sun Valley.

Sun Valley Crossing Location. The north crossing performs better for Alternatives 1 and 2 with the Sun Valley Boulevard interchange, while the south crossing performs better under Alternatives 3 and 4 with the west of Sun Valley interchange.

Detailed traffic operations results can be found in the *Pyramid Highway US 395 Connection Traffic Report* (RTC 2011).

3.6.3.5 Safety

The improvement of safety along the corridor is one of the purposes of the project.

No-Action Alternative

The rear-end crash rate and the overall crash rate are expected to increase as traffic and congestion increase on Pyramid Highway. An increase in rear-end crashes has been found to directly relate to increases in congestion and decreases in LOS.

Build Alternatives

Each of the build alternatives would improve safety in the Study Area for several reasons:

- The new freeway and rebuilt cross-sections of arterials would be constructed to current design standards, which would improve safety.
- A greater percentage of VMT would occur on a freeway instead of other facility types. In turn, VMT would be reduced on arterials. Freeways would have lower crash rates per VMT, compared to crash rates on arterials. This would result in a corresponding reduction in the number of crashes.
- The infrastructure changes would result in some access limitations. This would reduce the number of conflict points, which would improve safety.
- The introduction of transit to the Pyramid Corridor would also improve traveler safety, as accident rates on transit per passenger mile are less than in motor vehicles per passenger mile.

3.6.3.6 Connectivity

One of the purposes of the project is to provide direct and efficient travel routes.

The existing roadway network lacks east-west connectivity in the Study Area, and north-south connectivity is inefficient.

No-Action Alternative

The No-Action Alternative would not improve connectivity in the Study Area. While some improvements are planned within the Study Area in the No-Action Alternative, these would not alleviate the major congestion issues previously summarized in Section 3.6.3.4 *Traffic Operations*. East-west mobility would still be inefficient, with most Pyramid corridor traffic funneling to either McCarran Boulevard or I-80 to the south of the Study Area.

Build Alternatives

Each of the build alternatives would improve east-west connectivity; Alternatives 1 and 3 also would improve north-south regional connectivity in the Study Area. The US 395 Connector would provide an alternate, high-speed route for east-west motorists in each build alternative. McCarran Boulevard would experience congestion relief. Alternative 1 and Alternative 3 would improve north-south connectivity by adding a new roadway parallel to the existing Pyramid corridor. The build alternatives would improve regional and local connectivity in varying degrees:



- Alternatives 1 and 3 would provide greater regional connectivity between northern Sparks and central Reno because the off alignment and ridge alignment would be more direct.
- Alternatives 2 and 4 would provide greater local connectivity to the activity areas along Pyramid Highway because the on alignment with frontage roads would provide direct access to those uses along the enhanced roadway.
- All build alternatives would improve regional east-west connectivity because of the US 395 Connector.

3.6.3.7 Access

This Study is proposing the construction of a limited-access facility (freeway) to replace an existing arterial for much of the Pyramid Highway corridor. This would have impacts to access for many residents and businesses in the Study Area. Some property owners would experience improvements to access, while others would be negatively affected by the proposed improvements because they would experience less direct access to and from major travel routes.

No-Action Alternative

The No-Action Alternative would not impact property access along the Pyramid Highway corridor.

Build Alternatives

The build alternatives would change some access compared to the No-Action Alternative. In general along the Pyramid Corridor, interchanges would be provided at major arterials instead of the current three-way or four-way intersections along the existing Pyramid Highway. Interchanges provide a grade-separated junction between freeways and arterials, and provide a crossing of the freeway. Interchange locations differ among alternatives in the Sun Valley area and between Disc Drive and Sparks Boulevard along the Pyramid Corridor. Table 3-20 lists the interchange locations included in the build alternatives. Interchange locations are shown in Appendix C, *Plan Sheets*.

Table 3-20. Interchange Locations

Alternative	Interchange Locations
Alternative 1	US 395 & US 395 Connector
	Sun Valley Boulevard & US 395 Connector
	Disc Drive & Pyramid Freeway
	Pyramid Highway (south of Sparks Boulevard) & Pyramid Freeway
	Sparks Boulevard/Lazy Five Parkway (with connecting one-way frontage roads) & Pyramid Freeway
	Dolores Drive/Eagle Canyon Road (with connecting one-way frontage roads) & Pyramid Freeway

Table 3-20. Interchange Locations

Alternative	Interchange Locations
Alternative 2	US 395 & US 395 Connector
	Sun Valley Boulevard & US 395 Connector
	Disc Drive & US 395 Connector
	Disc Drive/Golden View Drive (with connecting one-way frontage roads) & Pyramid Freeway
	Sparks Boulevard/Lazy Five Parkway (with connecting one-way frontage roads) & Pyramid Freeway
	Dolores Drive/Eagle Canyon Road (with connecting one-way frontage roads) & Pyramid Freeway
Alternative 3	US 395 & US 395 Connector
	West Sun Valley & US 395 Connector
	Disc Drive & Pyramid Freeway
	Pyramid Highway (south of Sparks Boulevard) & Pyramid Freeway
	Sparks Boulevard/Lazy Five Parkway (with connecting one-way frontage roads) & Pyramid Freeway
	Dolores Drive/Eagle Canyon Road (with connecting one-way frontage roads) & Pyramid Freeway
Alternative 4	US 395 & US 395 Connector
	West Sun Valley & US 395 Connector
	Disc Drive & US 395 Connector
	Disc Drive/Golden View Drive (with connecting one-way frontage roads) & Pyramid Freeway
	Sparks Boulevard/Lazy Five Parkway (with connecting one-way frontage roads) & Pyramid Freeway
	Dolores Drive/Eagle Canyon Road (with connecting one-way frontage roads) & Pyramid Freeway

In addition, each build alternative would limit access at minor roadways compared to the No-Action Alternative. Instead of the existing direct access to the highway, several minor roadways and property driveways would either be closed or consolidated, while others would have access to new one-way frontage roads. Access closures would result in traffic circulation on local streets to other access points (see Appendix C *Plan Sheets*).

Access to one-way frontage roads would result in out-of-direction travel for those trips turning left on or off the highway, because these trips would need to travel on the one-way frontage road and turn around at the next interchange.

All of the build alternatives would introduce one-way frontage roads between Sparks Boulevard and Lazy Five Parkway, and between Dolores Drive and La Posada Drive/Eagle Canyon Drive. In addition, Alternatives 2 and 4 with the on alignment would restrict access south of Sparks Boulevard, including one-way frontage roads between Disc Drive and Golden View Drive. In contrast, Alternatives 1 and 3 would maintain the existing access along Pyramid Highway between Disc Drive and Sparks Boulevard.



Along the US 395 Connector, the build alternatives would improve access for the Sun Valley area, by providing an interchange with a major regional facility. Alternatives 1 and 2 with the Sun Valley Boulevard interchange location would provide more direct access to the US 395 Connector than Alternatives 3 and 4 with the West Sun Valley interchange location. In all of the build alternatives, local access to some properties near the new US 395 Connector would be modified.

Table 3-21 lists the specific access changes for each build alternative. Appendix C – *Plan Sheets* shows the access closures and consolidations, including new local road connections and cul-de-sacs where access to the new limited-access roadways would be closed.

Table 3-21. Access Modifications/Closures By Alternative

Roadway	Closure or Access Change
Alternative 1	
Rampion Way	<ul style="list-style-type: none"> Rampion Way would be closed west of Leon Drive. Access from Lofty View Drive and Sugar Hill Drive would be provided via Leon Drive to 1st Avenue and Franks Lane. South of Leopard Lily Drive, Rampion Way would be closed with a cul-de-sac, and access would remain via Leopard Lily Drive and East Rampion Way. South of Franks Lane, Prosser Way would be closed with a cul-de-sac, and access would remain via Prosser Way to the north. Access from Wayne Drive would remain via East and West Leonesio Drive.
Kiley Parkway	<ul style="list-style-type: none"> Access to Pyramid Highway would be closed. Access would remain via Kiley Parkway to the east.
Erin Drive	<ul style="list-style-type: none"> Access to Pyramid Highway would be closed. Access would remain via Dolores Drive.
Tierra Del Sol Parkway	<ul style="list-style-type: none"> Access to Pyramid Highway would be closed. Access would be made via Dolores Drive.
David James Boulevard	<ul style="list-style-type: none"> Access would be changed to a one-way southbound frontage road, instead of full access to Pyramid Highway.
Robert Banks Boulevard	<ul style="list-style-type: none"> Access would be changed to a one-way southbound frontage road, instead of full access to Pyramid Highway.
E. Sky Ranch Boulevard	<ul style="list-style-type: none"> Access to Pyramid Highway would be closed. Access would remain via Rockwell Blvd. and Omni Drive.
W. Sky Ranch Boulevard	<ul style="list-style-type: none"> Access to Pyramid Highway would be closed. Access would remain via Palm Springs Drive.
Alternative 2	
East and West Leonesio Drive	<ul style="list-style-type: none"> Slightly north of Dandini Boulevard, these streets would both be closed with cul-de-sacs. North of the closures, access to Sun Valley Boulevard would remain at Skaggs Circle. South of the closures, access to Sun Valley Boulevard would remain at Dandini Boulevard.
Spring Ridge Drive	<ul style="list-style-type: none"> Access would be changed to a one-way southbound frontage road, instead of full access to Pyramid Highway.
Blue Gem Creek	<ul style="list-style-type: none"> Access would be changed to a one-way northbound frontage road, instead of full access to Pyramid Highway.
Kiley Parkway	<ul style="list-style-type: none"> Access to Pyramid Highway would be closed. Access would remain via Kiley Parkway to the east.
Erin Drive	<ul style="list-style-type: none"> Access to Pyramid Highway would be closed. Access would remain via Dolores Drive.

Table 3-21. Access Modifications/Closures By Alternative

Roadway	Closure or Access Change
Tierra Del Sol Parkway	<ul style="list-style-type: none"> Access to Pyramid Highway would be closed. Access would be made via Dolores Drive.
David James Boulevard	<ul style="list-style-type: none"> Access would be changed to a one-way southbound frontage road, instead of full access to Pyramid Highway.
Robert Banks Boulevard	<ul style="list-style-type: none"> Access would be changed to a one-way southbound frontage road, instead of full access to Pyramid Highway.
E. Sky Ranch Boulevard	<ul style="list-style-type: none"> Access to Pyramid Highway would be closed. Access would remain via Rockwell Blvd. and Omni Drive.
W. Sky Ranch Boulevard	<ul style="list-style-type: none"> Access to Pyramid Highway would be closed. Access would remain via Palm Springs Drive.
Alternative 3	
East and West Leonesio Drive	<ul style="list-style-type: none"> Slightly north of Dandini Boulevard, these streets would both be closed with cul-de-sacs. North of the closures, access to Sun Valley Boulevard would remain at Skaggs Circle. South of the closures, access to Sun Valley Boulevard would remain at Dandini Boulevard.
Kiley Parkway	<ul style="list-style-type: none"> Access to Pyramid Highway would be closed. Access would remain via Kiley Parkway to the east.
Erin Drive	<ul style="list-style-type: none"> Access to Pyramid Highway would be closed. Access would remain via Dolores Drive.
Tierra Del Sol Parkway	<ul style="list-style-type: none"> Access to Pyramid Highway would be closed. Access would be made via Dolores Drive.
David James Boulevard	<ul style="list-style-type: none"> Access would be changed to a one-way southbound frontage road, instead of full access to Pyramid Highway.
Robert Banks Boulevard	<ul style="list-style-type: none"> Access would be changed to a one-way southbound frontage road, instead of full access to Pyramid Highway.
E. Sky Ranch Boulevard	<ul style="list-style-type: none"> Access to Pyramid Highway would be closed. Access would remain via Rockwell Blvd. and Omni Drive.
W. Sky Ranch Boulevard	<ul style="list-style-type: none"> Access to Pyramid Highway would be closed. Access would remain via Palm Springs Drive.
Alternative 4	
Rampion Way	<ul style="list-style-type: none"> Rampion Way would be closed west of Leon Drive. Access from Lofty View Drive and Sugar Hill Drive would be provided via Leon Drive to 1st Avenue and Franks Lane. South of Leopard Lily Drive, Rampion Way would be closed with a cul-de-sac, and access would remain via Leopard Lily Drive and East Rampion Way. South of Franks Lane, Prosser Way would be closed with a cul-de-sac, and access would remain via Prosser Way to the north. Access from Wayne Drive would remain via East and West Leonesio Drive.
Spring Ridge Drive	<ul style="list-style-type: none"> Access would be changed to a one-way southbound frontage road, instead of full access to Pyramid Highway.
Blue Gem Creek	<ul style="list-style-type: none"> Access would be changed to a one-way northbound frontage road, instead of full access to Pyramid Highway.
Kiley Parkway	<ul style="list-style-type: none"> Access to Pyramid Highway would be closed. Access would remain via Kiley Parkway to the east.
Erin Drive	<ul style="list-style-type: none"> Access to Pyramid Highway would be closed. Access would remain via Dolores Drive.



Table 3-21. Access Modifications/Closures By Alternative

Roadway	Closure or Access Change
Tierra Del Sol Parkway	<ul style="list-style-type: none"> Access to Pyramid Highway would be closed. Access would be made via Dolores Drive.
David James Boulevard	<ul style="list-style-type: none"> Access would be changed to a one-way southbound frontage road, instead of full access to Pyramid Highway.
Robert Banks Boulevard	<ul style="list-style-type: none"> Access would be changed to a one-way southbound frontage road, instead of full access to Pyramid Highway.
E. Sky Ranch Boulevard	<ul style="list-style-type: none"> Access to Pyramid Highway would be closed. Access would remain via Rockwell Blvd. and Omni Drive.
W. Sky Ranch Boulevard	<ul style="list-style-type: none"> Access to Pyramid Highway would be closed. Access would remain via Palm Springs Drive.

3.6.3.8 Mode Choice

One of the purposes of this Study is to respond to regional and local plans. One goal of the RTC 2035 RTP is to expand multimodal options throughout the region and increase alternative mode travel share. To help meet this goal, the build alternatives would include multimodal elements to supplement the highway improvements.

No-Action Alternative

The No-Action Alternative would not provide any multimodal improvements in the Study Area.

Build Alternatives

All of the build alternatives would include the same multimodal improvements. These are shown in Section 2.4.3 *Build Alternatives Common Elements* and include:

- New regional bus service along Pyramid Highway.
 - ♦ According to the RTC Travel Demand Model, the new service is projected to attract over 1,000 riders per day in 2035.
- Three new transit/carpool parking lots at major cross streets.
 - ♦ The new parking lots would encourage the formation of carpools and vanpools and would include transit amenities, such as benches and shelters.
- Pedestrian and bicycle facilities the length of the Pyramid Highway corridor.
 - ♦ Section 3.7 *Pedestrian and Bicycle Safety* has full description of these facilities.

Collectively, these improvements address the stated purpose to provide additional travel mode choices for motorists. There are no significant differences between the build alternatives regarding alternative mode improvements.

3.6.3.9 Construction-Related Impacts

Construction activities would impact traffic and congestion. This section describes the measures that would be taken to minimize and mitigate those impacts.

No-Action Alternative

The No-Action Alternative would not result in construction impacts.

Build Alternatives

Each build alternative would affect traffic congestion during construction. However, some build alternatives would have notably lesser impact than others:

- Alternatives 1 and 3 with the off alignment and ridge alignment would result in no impacts during construction to traffic along Pyramid Highway south of Sparks Boulevard.
- Alternatives 2 and 4 with the on alignment would result in major detours and temporary road closures along the Pyramid corridor between Sparks Boulevard and Disc Drive, resulting in substantial traffic delays during construction.
- Alternatives 3 and 4 with the west of Sun Valley interchange locations would reduce impacts during construction along Sun Valley Boulevard, compared to locating the interchange at Sun Valley Boulevard under Alternatives 1 and 2.

Maintenance of traffic and access during construction will be finalized during the development of a Preferred Alternative.

3.6.3.10 Transportation Impacts

The transportation-related impacts are summarized in Table 3-22.

Table 3-22. Summary of Transportation Impacts

Local Plans and Policies	<ul style="list-style-type: none"> • The No-Action Alternative would be inconsistent with local plans and policies. Each of the build alternatives would be consistent with local plans and policies.
VTM	<ul style="list-style-type: none"> • Each of the build alternatives would result in similar increases, ranging from 35,000 to 42,000, of daily regional VMT in 2030 compared to the No-Action Alternative, for totals of about 17.74 million per day. Each build alternative would add VMT on freeways, but would reduce VMT by about 500,000 per day on arterials and other local roads. • Minor VMT differences indicate that Alternatives 3 and 4 with the West Sun Valley interchange would increase VMT by about 6,000 compared to Alternatives 1 and 2. Another minor difference is that Alternatives 1 and 3 with the off- and ridge alignments would reduce VMT slightly.
Average Speed	<ul style="list-style-type: none"> • Each of the build alternatives would improve average regional speed to about 44 mph, compared to 41 mph for the No-Action Alternative in 2030. • Average speeds on arterials and other local roads would improve to 36 mph on average for the build alternatives, compared to 33 mph for the No-Action Alternative. This indicates a reduction of congestion on arterials and other local roads.



Table 3-22. Summary of Transportation Impacts

Traffic Volumes	<ul style="list-style-type: none"> The build alternatives would each result in similar volumes on the Pyramid Highway and the US 395 Connector. The 2035 daily traffic on the Pyramid Highway would range from 30,000 vehicles south of Calle de la Plata to almost 110,000 north of Disc Drive. On the US 395 Connector, 2035 daily traffic volume would be about 114,000 west of Pyramid. Traffic volumes on US 395 would be increased by about 25,000 vehicles a day compared to the No-Action Alternative.
Traffic Operations	<ul style="list-style-type: none"> Each of the build alternatives would result in similar traffic conditions on the new facilities, including LOS D or better on freeways, and LOS E or better at intersections. There would be minor differences between the alternatives. Alternative 3 with the ridge alignment results in slightly worse operations on the existing Pyramid Highway between Disc Drive and Golden View Drive, compared to Alternative 1 with the off alignment. Also, traffic operations on Sun Valley Boulevard are better with Alternatives 3 and 4 that have the interchange located at West Sun Valley, compared to Alternatives 1 and 2. However, Alternatives 3 and 4 would result in more traffic on US 395.
Safety	<ul style="list-style-type: none"> Each of the build alternatives would improve traffic safety compared to the No-Action Alternative because of new design standards, more travel on freeways compared to arterials, and fewer conflict points.
Connectivity	<ul style="list-style-type: none"> Each of the build alternatives would improve regional east-west connectivity because of the US 395 Connector, compared to the No-Action Alternative. Alternatives 1 and 3 also would improve regional north-south connectivity because they would provide a new facility parallel to the existing Pyramid Highway between Disc Drive and Sparks Boulevard.
Access	<ul style="list-style-type: none"> Alternatives 1 and 4 would close part of Rampion Way because of the North Crossing of Sun Valley Boulevard. Alternatives 2 and 3 would close the middle section of East and West Leonesio Drives because of the South Crossing of Sun Valley Boulevard. Along the Pyramid Corridor, five roadways that currently have full access to the highway would be closed in each build alternative. Along Pyramid north of Sparks Boulevard, each of the build alternatives would convert two locations that currently have full access to Pyramid Highway to right-in/right-out onto a one-way frontage road. Alternatives 2 and 4 with the on alignment also would change the access to right-in/right-out onto a one-way frontage road at two locations between Disc Drive and Sparks Boulevard.
Mode Choice	<ul style="list-style-type: none"> Each of the build alternatives would provide a similar set of multimodal improvements, in contrast to the No-Action Alternative. This would include new regional bus service <u>(to serve corridor demand consistent with the service standards of RTC)</u> with new transit/carpool parking lots, and pedestrian and bicycle facilities along the length of the Pyramid Highway and US 395 Connector corridors.
Construction-related Impacts	<ul style="list-style-type: none"> Alternatives 1 and 3 would not impact traffic along Pyramid Highway between Disc Drive and Sparks Boulevard during construction, in contrast to the on alignment of Alternatives 2 and 4, which would cause substantial traffic delays during construction in this area. Alternatives 3 and 4 with the construction of the West Sun Valley interchange would disrupt traffic on Sun Valley Boulevard notably less than the construction of the Sun Valley Boulevard interchange location of Alternatives 1 and 2.

3.7 PEDESTRIAN AND BICYCLE SAFETY

This section describes existing and planned bicycle and pedestrian facilities in the Study Area. This includes signed facilities and informal trails on undeveloped land.

3.7.1 Methods

The Study team identified existing and planned bicycle and pedestrian facilities in the Study Area through coordination with local jurisdictions and review of area plans, as listed below:

- Washoe County Department of Regional Parks & Open Space
- 2030 Regional Transportation Plan, RTC, November 18, 2004
- Regional Transportation Improvement Program FY 2007-2011, RTC, October 2006
- Dandini Regional Center Plan, July 2005
- *Spanish Springs Area Plan*, November 2006 (updated September 2010)
- *Sun Valley Area Plan*, November 2005 (updated September 2010)
- The City of Reno Master Plan, October 2007
- City of Sparks Master Plan Data Book, October 2001
- Pyramid Highway Corridor Management Plan, approved 2002
- *Public Services, Facilities, and Infrastructure Plan*, part of the City of Reno Master Plan, October 24, 2007
- Reno Sparks Bicycle & Pedestrian Master Plan, RTC, approved October 2011

The Study team assessed impacts to existing bicycle and pedestrian facilities, and considered how well the project would accommodate planned facilities consistent with area plans. Project impacts to public recreation trails were also considered, in accordance with Section 4(f) of the U.S. DOT Act of 1966, as amended. Additional information on the Section 4(f) evaluation is in Chapter 5.0 *Section 4(f) Evaluation*.

3.7.2 Existing Conditions

3.7.2.1 Local and Regional Planning Efforts

All area plans emphasize the need to provide improved bicycle and pedestrian facilities, and include plans to provide such facilities. The RTC's 2030 RTP establishes the goal of developing a continuous regional network of safe and convenient bikeways connected to other transportation modes and local bikeway systems, and to provide pedestrian access to existing and planned land uses as part of all transportation projects. The RTP includes future bicycle facilities along the Pyramid Highway and a future US 395 Connection.

The *Reno Sparks Bicycle & Pedestrian Master Plan* (October 2011) reinforces the goal of providing a comprehensive system of bicycle and pedestrian routes that will offer a safe and convenient circulation system for non-motorized travel. The *Dandini Regional Center*



Plan includes pedestrian connectivity as one of its stated policies; the entire plan, which includes both building and street design, is heavily based on creating a pedestrian-friendly, multimodal development. The *Pyramid Highway Corridor Management Plan* recommends continuous bicycle and pedestrian corridors along the freeway corridors, and for them to be contained, where feasible, within the freeway right-of-way.

3.7.2.2 Existing Bicycle and Pedestrian Facilities

The Study Area contains numerous formal bicycle and pedestrian facilities, including bicycle lanes, shared use paths, and signed shared roadways. Pyramid Highway currently has facilities for northbound and southbound bicyclists in some form, with designated bicycle lanes in some segments and paved shoulders in others. Several roadways within the Study Area have bicycle lane segments, including West Calle De La Plata, Eagle Canyon Drive, Lazy 5 Parkway, Sparks Boulevard, Los Altos Parkway, Disc Drive, North McCarran Boulevard, El Rancho Drive, and East Parr Boulevard. Highland Ranch Parkway provides a signed shared roadway. Some developments east of Pyramid Highway, between Highland Ranch Parkway and Disc Drive, provide shared use pathways. In addition, the Study Area contains numerous informal trails that have been established on undeveloped areas, particularly on BLM land in the central portion of the Study Area. Informal trails are trails that have been formed through casual use by the public; they are not officially designated as recreation trails, and are not managed or maintained for that use. No trails formally designated by the BLM are located on BLM lands within the Study Area.



View of existing bicycle facilities along Pyramid Highway north of Disc Drive.

According to the *Reno Sparks Bicycle & Pedestrian Master Plan*, sidewalks are sparse and discontinuous along major roadways within the Study Area. Sun Valley Boulevard provides segments of north-south bicycle facilities, but connections to other facilities are lacking. Other bicycle and pedestrian facility deficiencies identified in the *Reno Sparks Bicycle & Pedestrian Master Plan* include bicycle lanes less than four feet in width, and a lack of “Bicycle Lane” and “No Parking” signs.

Existing Bicycle and Pedestrian Facilities

Even with the existing facilities described here, the Study Area lacks an extensive, well-connected network of bicycle and pedestrian facilities overall.

Recent observations indicate that bicycle and pedestrian use along Pyramid Highway is low. According to the *Reno Sparks Bicycle and Pedestrian Master Plan*, the Reno Sparks region has a current bicycle commute mode share of 0.6 percent, and a walking commute mode share of 2.8 percent. The Reno Sparks region’s bicycle commute mode share is less than most U.S. cities in comparable regions, and the walking commute

mode share falls in the middle of the range. However, the Reno Sparks region mode shares compare favorably with other Nevada metro areas.

Figure 3-21 illustrates existing bicycle and pedestrian facilities identified within the Study Area, but does not illustrate informal trails.

3.7.2.3 *Planned Bicycle and Pedestrian Facilities*

Figure 3-22 illustrates the bicycle, pedestrian, and trail facilities planned in the Study Area.

Planned bicycle and pedestrian facilities in the Study Area are:

- Extending bicycle lane along Highland Ranch Parkway farther west.
- Extending bicycle lane along Disc Drive farther east to Vista Boulevard.
- Changing Queen Way to a signed shared roadway.
- Providing bicycle lane along Wedekind Road west of Pyramid Highway.
- Extending bicycle lanes on Sun Valley Boulevard from East Gepford Parkway south to Crystal Lane.
- Providing a path from Clear Acre Lane west and south, across US 395 to Sutro Street, then from that point providing a bicycle lane south along Sutro Street.
- Providing bicycle lane along Dandini Boulevard from Sun Valley Boulevard west, connecting to the existing bicycle lane on East Parr Boulevard at US 395.

Planned Bicycle and Pedestrian Facilities

Area plans recommend improvements to numerous existing bicycle and pedestrian facilities in the Study Area



1

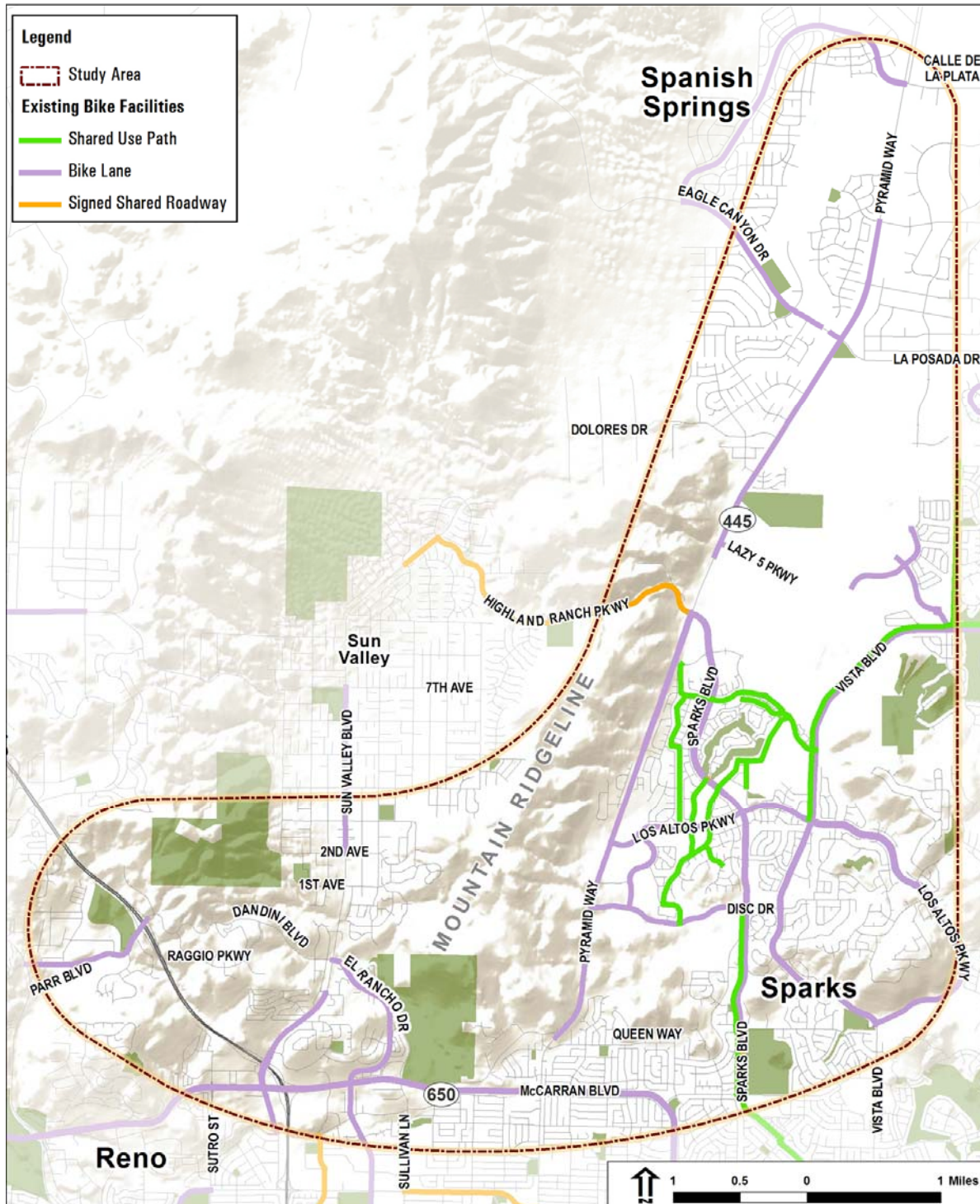


Figure 3-21. Existing Bicycle and Pedestrian Facilities within the Study Area

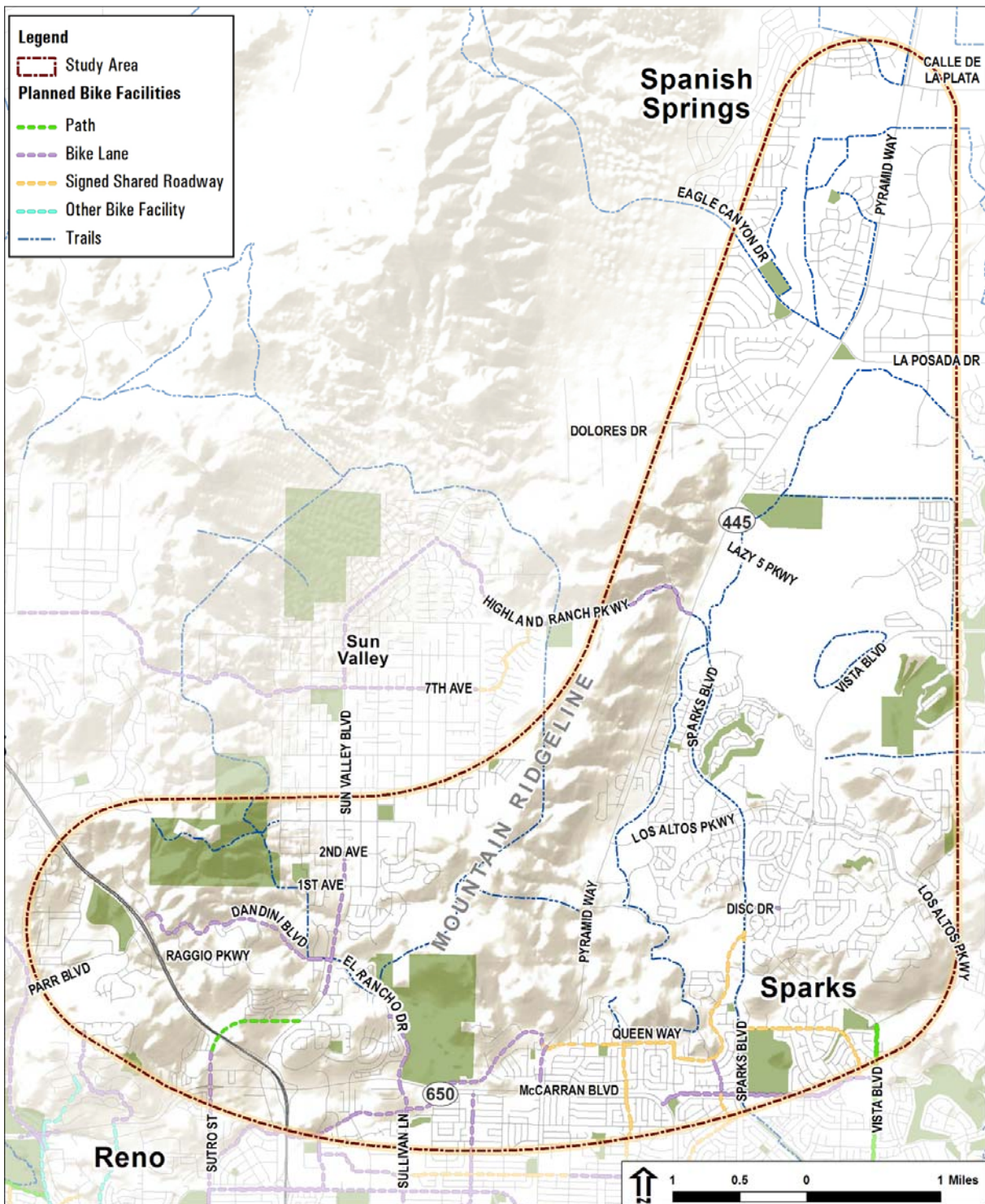


Figure 3-22. Planned Bicycle, Pedestrian, and Trail Facilities in the Study Area



Planned trails within the Study Area are:

- Trail along Calle de la Plata west of Pyramid Highway.
- Trail from Eagle Canyon Drive west of Pyramid Highway that would run north, crossing Pyramid Highway south of Calle de la Plata and meander through developments east of Pyramid Highway.
- Trail along Pyramid Highway from Eagle Canyon Drive north to Egyptian Drive.
- Trail that would meander along the east side of Pyramid Highway from La Posada south through Wedekind Park.
- Trail along Sparks Boulevard south to Baring Boulevard.
- Trail that would extend from Pyramid Highway near Disc Drive and run west to connect to a north-south trail that is planned from El Rancho Drive north to Highland Ranch Parkway.
- Trail along Dandini Boulevard east of Sun Valley Boulevard that would veer north and west, providing a connection to developments to the west.

3.7.3 Build Alternatives Bicycle and Pedestrian Facilities

This section describes the bicycle and pedestrian facilities that would be provided by the build alternatives.

3.7.3.1 *Bicycle and Pedestrian Facilities Common to All Build Alternatives*

The list below describes the bicycle and pedestrian facilities that would be provided under all build alternatives (described north to south, and east to west). Figure 3-23, Figure 3-24, Figure 3-25, and Figure 3-26 schematically illustrate the proposed facilities for each build alternative.

Bicycle and Pedestrian Facilities Common to All Build Alternatives

The build alternatives include bicycle and pedestrian facilities that would be compatible with planned facilities in the Study Area.

- Ten-foot-wide shared use path on the east side of Pyramid Highway from Calle de La Plata to Disc Drive. This two-way path would connect to the planned facilities north of the Study Area. The shared use paths adjacent to the highway would be built within the right-of-way.
- Five-foot-wide bicycle lane on the west side of Pyramid Highway between Eagle Canyon Road and Dolores Drive, between Lazy 5 Parkway and Sparks Boulevard, and on both sides of Pyramid Highway between Golden View Drive and Queen Way.

1

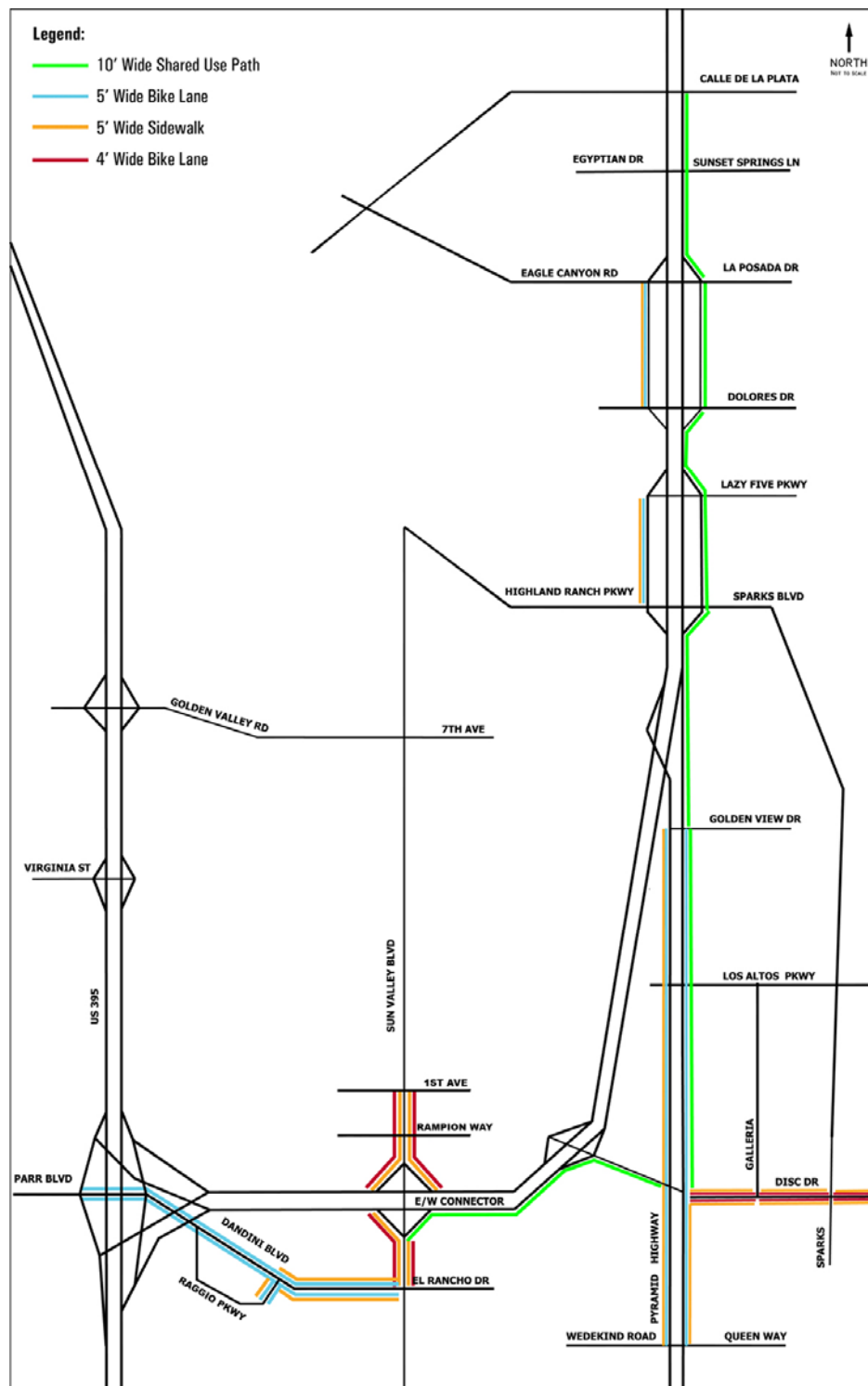


Figure 3-23. Alternative 1—Proposed Bicycle and Pedestrian Facilities



1

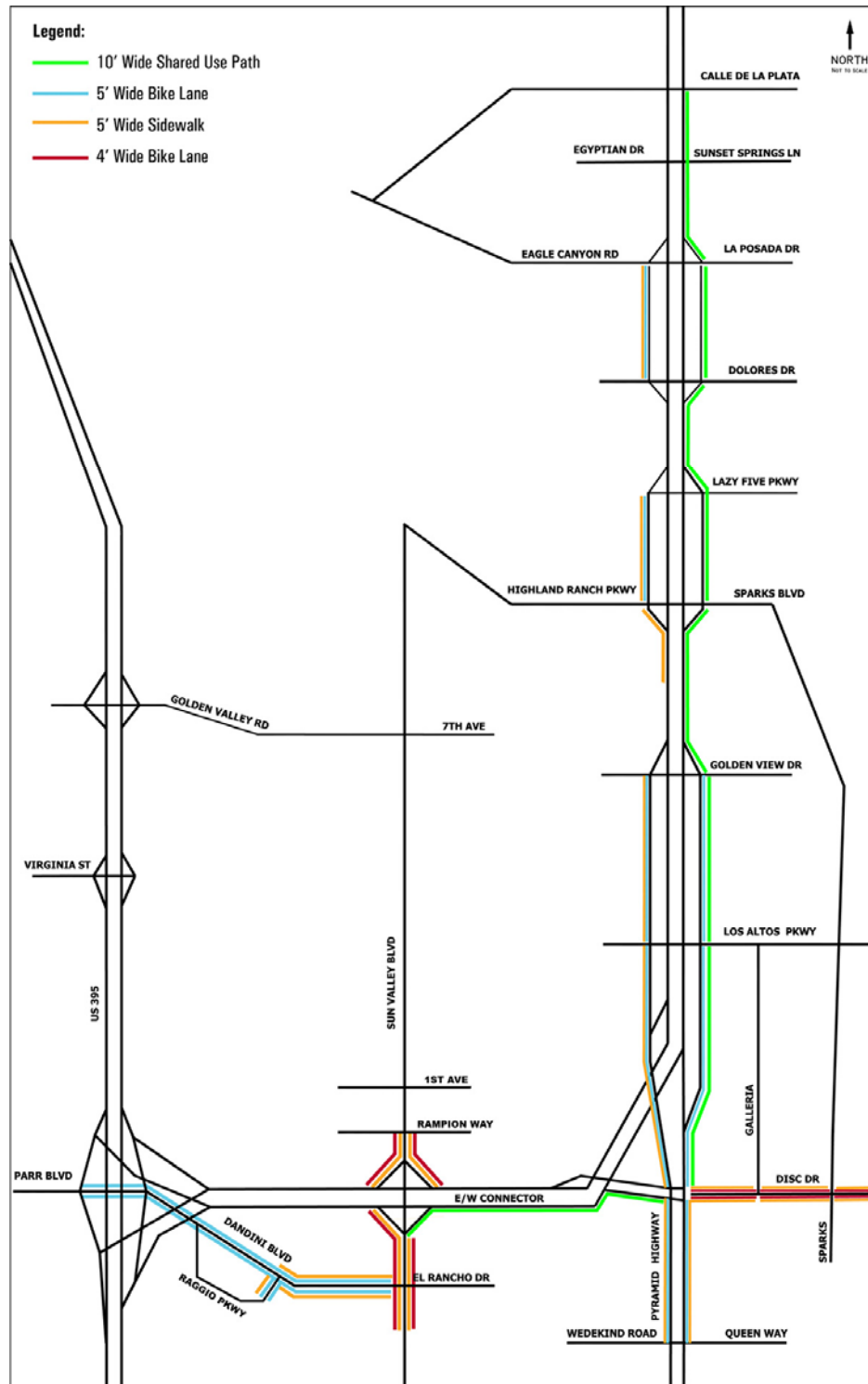


Figure 3-24. Alternative 2—Proposed Bicycle and Pedestrian Facilities

1

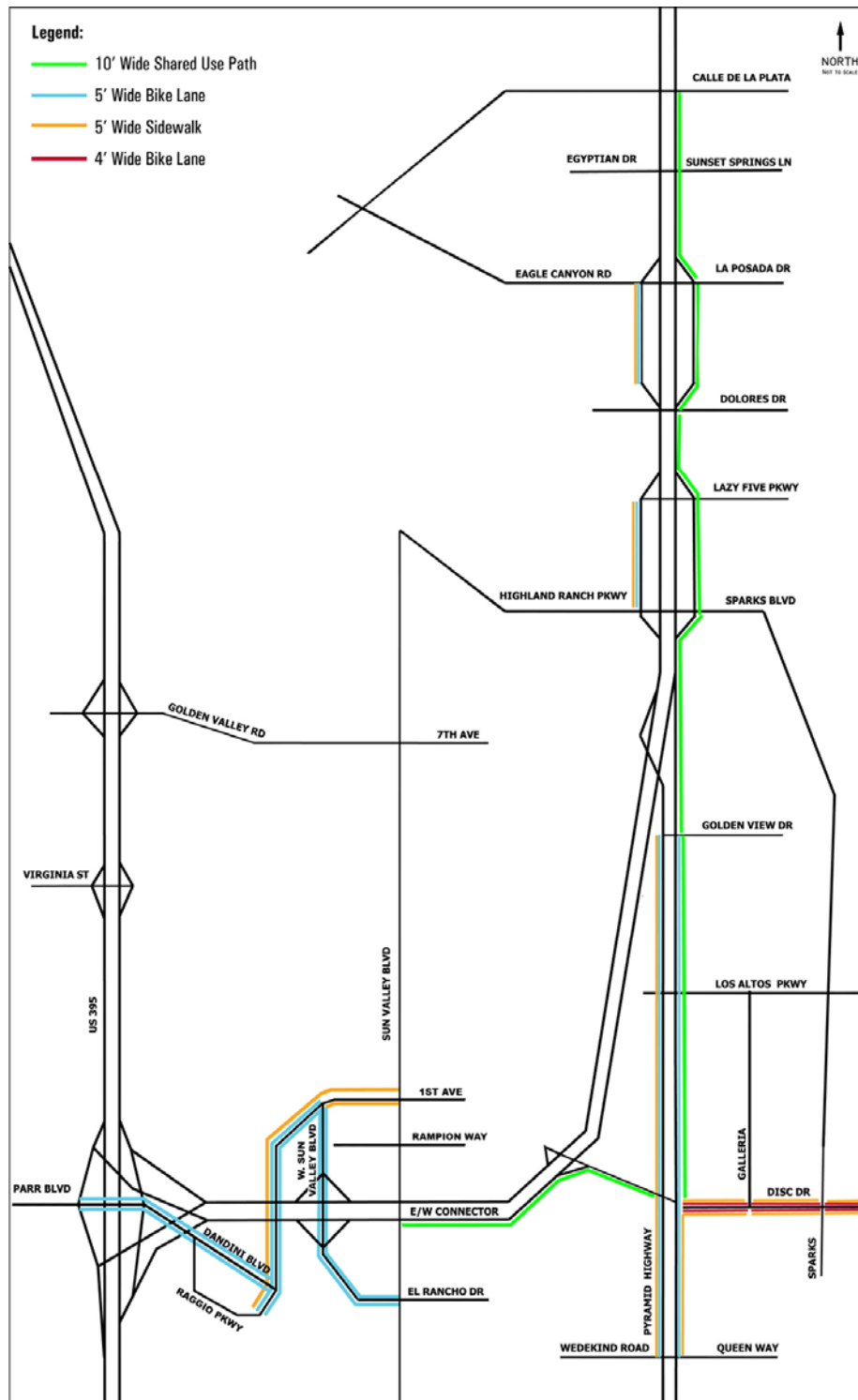


Figure 3-25. Alternative 3—Proposed Bicycle and Pedestrian Facilities

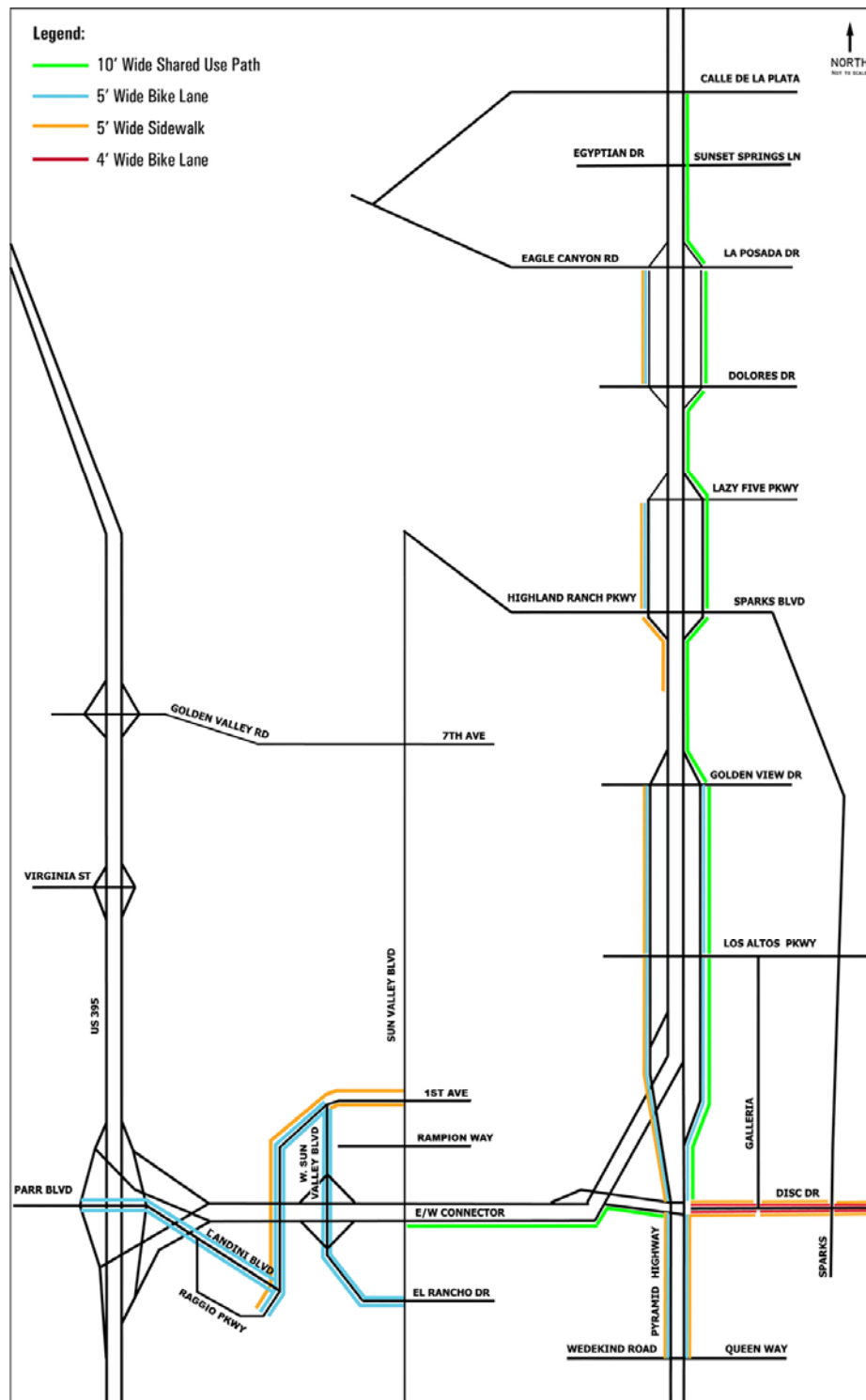


Figure 3-26. Alternative 4—Proposed Bicycle and Pedestrian Facilities

- Five-foot-wide sidewalk on the west side of Pyramid Highway between Eagle Canyon Road and Dolores Drive, Lazy 5 Parkway and Sparks Boulevard, and Golden View Drive and Disc Drive, and on both sides of Pyramid Highway between Disc Drive and Queen Way.
- Four-foot-wide bicycle lanes and five-foot-wide sidewalks along each side of Disc Drive between Pyramid Highway and Vista Boulevard.
- A shared use path along south side of US 395 Connector, from the Disc Drive and Pyramid Highway intersection to Sun Valley Boulevard. The path width would be 10 feet to 16 feet wide, and will be determined during final design. Current grade standards require the shared use path design to follow a meandering route south of the US 395 Connector, shown in Appendix C *Design Plans*. A design variance may be pursued during the final design process that would allow design of the pathway to run adjacent to the US 395 Connector alignment. Additionally, this path could be constructed following initial construction of the US 395 Connector and would be based on project phasing and available funding.
- None of the build alternatives would provide a shared use path west of Sun Valley Boulevard because of the topography in that area. Instead, all build alternatives would provide a widened roadway shoulder and sidewalks west of Sun Valley Boulevard for bicycle and pedestrian use. Please refer to Section 2.4.3.2 for more information.

3.7.3.2 *Alternative 1*

In addition to bicycle and pedestrian facilities common to all build alternatives, Alternative 1 would provide these facilities shown in Figure 3-23.

- Four-foot-wide bicycle lanes and five-foot-wide sidewalks along both sides of Sun Valley Boulevard between 1st Avenue and Dandini Boulevard.
- Five-foot-wide bicycle lanes along both sides of Dandini Boulevard between Sun Valley Boulevard and Parr Boulevard.
- Five-foot-wide bicycle lanes on both sides of Raggio Parkway to limits of construction.
- Five-foot-wide sidewalks on both sides of Dandini Boulevard between Sun Valley Boulevard and Raggio Parkway.
- Five-foot-wide sidewalk on west side of Raggio Parkway from Dandini Boulevard to limits of construction.

3.7.3.3 *Alternative 2*

In addition to bicycle and pedestrian facilities common to all build alternatives, Alternative 2 would provide these facilities shown in Figure 3-24.



- Four-foot-wide bicycle lanes and five-foot-wide sidewalks along both sides of Sun Valley Boulevard between Rampion Way and Dandini Boulevard.
- Five-foot-wide bicycle lanes along both sides of Dandini Boulevard between Sun Valley Boulevard and Parr Boulevard.
- Five-foot-wide bicycle lanes on both sides of Raggio Parkway to limits of construction.
- Five-foot-wide sidewalks on both sides of Dandini Boulevard between Sun Valley Boulevard and Raggio Parkway.
- Five-foot-wide sidewalk on west side of Raggio Parkway from Dandini Boulevard to limits of construction.

3.7.3.4 Alternative 3

In addition to bicycle and pedestrian facilities common to all build alternatives, Alternative 3 would provide these facilities shown in Figure 3-25.

- Five-foot-wide bicycle lanes along both sides of realigned Dandini Boulevard, running north along West Sun Valley Boulevard to 1st Avenue.
- Five-foot-wide bicycle lanes along both sides of 1st Avenue extending south along Raggio Parkway, ending at the limits of construction on Raggio Parkway.
- Five-foot-wide bicycle lanes along Dandini Boulevard from West Sun Valley Boulevard to Parr Boulevard.
- Five-foot-wide sidewalk along both sides of 1st Avenue between Sun Valley Boulevard and West Sun Valley Boulevard.
- Five-foot-wide sidewalk on west side of 1st Avenue extending south along Raggio Parkway, ending at the limits of construction on Raggio Parkway.

3.7.3.5 Alternative 4

In addition to bicycle and pedestrian facilities common to all build alternatives, Alternative 4 would provide the same facilities as described under Alternative 3 and shown in Figure 3-26.

- Five-foot-wide sidewalk on west side of Pyramid Highway extending south, halfway between Highland Ranch Parkway and Golden View Drive.
- A five-foot-wide bicycle lane and a five-foot-wide sidewalk along the west frontage road of Pyramid Highway between Eagle Canyon Road and Dolores Drive.

- A five-foot-wide sidewalk along the west side of Pyramid Highway from Highland Ranch Parkway to just north of Golden View Drive.

3.7.3.6 Primary Differences Between the Build Alternatives

The primary differences in bicycle and pedestrian facilities provided by the build alternatives are located in the western portion of the Study Area between Sun Valley Boulevard and existing US 395. Alternatives 1 and 2 would provide bicycle lanes and sidewalks along Sun Valley Boulevard at the US 395 Connector, whereas Alternatives 3 and 4 would provide bicycle lanes and sidewalks along West Sun Valley Boulevard. In addition, Alternatives 2 and 4 would provide a sidewalk on the west side of Pyramid Highway from Highland Ranch Parkway to just north of Golden View Drive.

3.7.4 Bicycle and Pedestrian Facility Impacts

Impacts to existing bicycle and pedestrian facilities can include direct impacts, such as removal or relocation of existing facilities; indirect impacts, such as increased connectivity, traffic noise increases, or visual changes; or temporary impacts during construction, such as temporary closures and detours.

3.7.4.1 No-Action Alternative

Under the No-Action Alternative, planned bicycle and pedestrian facilities would be provided as outlined in area plans and as funding allows. Construction of these facilities would result in such impacts as temporary construction closures and detours.

3.7.4.2 Build Alternatives

This section describes anticipated impacts to existing and planned bicycle and pedestrian facilities identified in the Study Area as a result of the build alternatives.

Impacts Common to All Build Alternatives

The build alternatives would provide bicycle and pedestrian facilities that would enhance connectivity within the Study Area and contribute to an improved safe and convenient circulation system for non-motorized travel as envisioned in area plans. The build alternatives would not preclude implementation of other planned bicycle and pedestrian facilities within the Study Area by others.

Construction of all build alternatives would have the potential to temporarily impact existing bicycle and pedestrian facilities within the Study Area that are crossed by roadway improvements or located along improved roadways. Impacts would include temporary closures and detours, as described below.

- Construction of the Pyramid Highway widening and new shared use path would impact existing bicycle and pedestrian facilities on Pyramid Highway and its cross-streets. Because of the low bicycle and pedestrian use observed along the Pyramid



Highway corridor, these impacts are not expected to greatly disrupt facility users. Temporary impacts would include:

- ◆ Bicycle facilities along Pyramid Highway: Temporary detour of bicycle lane.
- ◆ Bicycle lane on West Calle De La Plata: Temporary detour of bicycle lane.
- ◆ Bicycle lane on Eagle Canyon Drive: Temporary detour of bicycle lane.
- ◆ Bicycle lane and sidewalk on Lazy 5 Parkway: Temporary detour of bicycle lane and sidewalk.
- ◆ Signed shared roadway on Highland Ranch Parkway: Temporary detour of bicycle lane.
- ◆ Bicycle lane and sidewalk on Sparks Boulevard: Temporary detour of bicycle lane and sidewalk.
- ◆ Bicycle lane and sidewalk on Los Altos Parkway: Temporary detour of bicycle lane and sidewalk.
- Bicycle lanes and sidewalks along Disc Drive: It is likely that widening would be constructed on one side of Disc Drive, and afterwards the other side of the road would be widened. Bicycle lanes, like the travel lanes, would be shifted from one side of the road to the other as construction is completed. Possible detour would be provided along Los Altos Parkway, but it may be too far out of the way; this would be determined during final design.

Additional paved shoulder and sidewalks in Sun Valley. For Alternatives 1 and 2, these amenities would be included on realigned Dandini Boulevard. For Alternatives 3 and 4, they would be included on improved 1st Avenue and Dandini Boulevard.

All existing and planned formal bicycle and pedestrian facilities are located along existing or planned roadways, as shown in Figure 3-21 and Figure 3-22. As such, all build alternatives would impact the pathway user experience by increased traffic noise as a result of traffic increases, and with visual changes in the form of new highway and roadway infrastructure, such as overpasses, frontage roads, and wider paved roadway areas. These impacts would be balanced by improved safety and pathway connectivity within the Study Area that would be provided by all build alternatives.

All build alternatives would impact informal trails located on the BLM land along the proposed US 395 Connector.

Alternative 1 Impacts

In addition to impacts described under Impacts Common to All Build Alternatives, Alternative 1 also would impact informal trails located on BLM land west of Pyramid Highway north of Disc Drive.

Alternative 2 Impacts

Alternative 2 would result in no additional impacts beyond those described under Impacts Common to All Build Alternatives.

Alternative 3 Impacts

In addition to impacts described under Impacts Common to All Build Alternatives, Alternative 3 also would impact informal trails located on BLM land west of Pyramid Highway north of Disc Drive.

Alternative 4 Impacts

Alternative 4 would result in no additional impacts beyond those described under Impacts Common to All Build Alternatives.

3.7.5 Bicycle and Pedestrian Facility Mitigation

RTC and/or NDOT will employ the following measures to mitigate temporary construction impacts to bicycle and pedestrian facilities:

- Provide detours during construction to maintain continued use of existing bicycle and pedestrian facilities.
- Conduct a public information program to notify bicyclists and pedestrians of planned closures and/or detours.
- Use signage to direct bicyclists and pedestrians to temporary detours.
- Provide construction fencing to protect bicyclists and pedestrians from construction areas.
- Because informal trails are not managed or maintained for recreational use, no mitigation is necessary.

3.8 AIR QUALITY

This section discusses air quality conditions in the Study Area, and summarizes effects to air quality from the build alternatives. For details, please refer to the *Pyramid Highway and US 395 Connection Air Quality Technical Report* (RTC, 2012).

3.8.1 Air Quality Regulations

Air quality standards establish the concentration above which a pollutant is known to cause adverse health effects to sensitive groups in the population, such as children and the elderly.



3.8.1.1 Federal Requirements

The Clean Air Act (CAA) of 1970, amended in 1990, is the federal law that governs air quality. The U.S. Environmental Protection Agency (EPA) has set national ambient air quality standards (NAAQS) for six criteria pollutants to protect the public from the health hazards associated with air pollution. The six criteria pollutants are: carbon monoxide (CO), ozone (O₃), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter (PM₁₀ and PM_{2.5}), and lead (Pb). Table 3-23 summarizes the NAAQS for the above criteria pollutants.

Table 3-23. National Ambient Air Quality Standards for Criteria Pollutants

Pollutant/Averaging Time	Primary Standard*	Secondary Standard*
Carbon monoxide (CO)		
8-hour	9 ppm†	—
1-hour	35 ppm	—
Lead (Pb)		
Rolling 3-Month Average	0.15 µg/m ³	0.15 µg/m ³
Nitrogen dioxide (NO₂)		
1-hour	100 ppb	—
Annual Arithmetic Mean	53 ppb	53 ppb
Ozone (O₃)		
8-hour	0.075 ppm	0.075ppm
Particulate matter less than 2.5 microns (PM_{2.5})		
Annual	15 µg/m ³	15 µg/m ³
24-hour	35 µg/m ³	35 µg/m ³
Particulate matter less than 10 microns (PM₁₀)		
24-hour	150 µg/m ³	150 µg/m ³
Sulfur dioxide (SO₂)		
1-hour	75 ppb	—
3-hour	—	0.5 ppm

Source: EPA.

*Primary standards set limits to protect public health, including the health of “sensitive” populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against visibility impairment, damage to animals, crops, vegetation, and buildings.

†Due to mathematical rounding, a measured value of 9.5 ppm or greater is necessary to exceed the standard.

Ppb=parts per billion.

ppm = parts per million.

µg/m³ = micrograms per cubic meter.

3.8.1.2 Transportation Conformity

The transportation conformity rule helps to ensure that transportation funds go to projects that are consistent with local air quality goals outlined in a State Implementation Plan (SIP). A SIP contains the set of actions or control measures that the state plans to implement to meet NAAQS. Transportation conformity applies to regionally significant and federally funded projects located in designated non-attainment or attainment/maintenance areas. To determine if a project demonstrates conformity to the SIP and maintenance plans, a project must be included in a Regional

Transportation Plan (RTP) and Transportation Improvement Program (TIP), and not cause or contribute any new violation of NAAQS. Conformity with the CAA and its amendment takes place on two levels—first, at the regional level and second, at the project level. The proposed project must conform at both levels to be approved.

At the regional level, RTPs are developed to include all of the transportation projects planned for a region over a period of years, usually at least 20 years. Based on the projects included in the RTP, an air quality model is run to determine whether or not the implementation of those projects would conform to emission budgets or other tests showing that attainment requirements of the CAA and its amendment are met. If the conformity analysis is successful, the regional planning organization, such as the Washoe County RTC, and the appropriate federal agencies, such as FHWA, make the determination that the RTP is in conformity with the SIP for achieving the goals of the CAA and its amendment. Otherwise, the projects in the RTP must be modified until conformity is attained.

At the project level, Nevada is most concerned with CO because it is directly emitted from the tail pipes of motor vehicles. PM₁₀ emissions are also a local project concern, often derived from motor vehicle exhaust. However, most PM₁₀ in the atmosphere is generated as fugitive dust—fine dust created by vehicle re-entrainment of excess roadside sand and disturbed ground surfaces from both farming and construction. A “hot spot” analysis is usually required if an area is designated as a non-attainment or maintenance area for CO and/or PM. In general, projects must not cause the CO and/or PM standard to be violated, and in non-attainment areas, the project must not cause any increase in the number and severity of violations. If a known CO and/or PM violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

3.8.1.3 State Requirements

The Washoe County Health District—Air Quality Management Division (WCAQMD) is responsible for controlling sources of air pollution and assuring compliance with the federal NAAQS within Washoe County. The agency is also responsible for preparing a SIP for non-attainment and maintenance areas. The SIP outlines goals and strategies that would lead the area into compliance with NAAQS. Washoe County prepared the CO SIP in September 2005 and the PM₁₀ SIP in May 2009.

3.8.2 Attainment Status

The Study Area is located in Hydrographic Area 87, Washoe County, Nevada, which is designated as a non-attainment area for PM₁₀, maintenance area for CO, and attainment for all other criteria pollutants. An area is classified as non-attainment when one or more of the criteria pollutants exceed the NAAQS. Conversely, an area is classified as an attainment area when there are no criteria pollutants that exceed the NAAQS and a long-term maintenance plan has been approved by EPA.



Project-level CO and PM₁₀ hot spot analyses are required for non-attainment and maintenance areas to demonstrate that the proposed project will not cause any exceedance of the NAAQS or result in a new violation of the NAAQS.

On April 30, 2004, the EPA designated and classified Washoe County as an attainment area for the 8-hour ozone NAAQS, which became effective June 15, 2004. When EPA rescinded the 1-hour NAAQS, which became effective in 2005, areas such as Washoe County (i.e., 1-hour non-attainment and 8-hour attainment) were required to submit a maintenance plan. The plan addresses requirements to ensure prevention of exceedances and violations of the 8-hour ozone NAAQS. In March 2008, EPA significantly strengthened the NAAQS for the 8-hour ozone standard from 0.080 ppm to 0.075 ppm. Ambient air monitoring data from June/July 2008 were influenced by wildfires in northern California. An exceptional events request was submitted to EPA in October 2009.

In 2004, EPA determined PM_{2.5} concentrations had met the 1997 air quality standards; designating Washoe County as an attainment area. In 2006, EPA strengthened the 24-hour PM_{2.5} standard from 65 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) to 35 $\mu\text{g}/\text{m}^3$.

In 2006, EPA also revoked the annual PM₁₀ standard because of the lack of evidence linking health problems to long-term exposure to coarse particle pollutions. In July 2009, a revision to the PM₁₀ SIP was submitted to EPA requesting redesignation of Hydrographic Area 87 to attainment/maintenance of the 24-hour NAAQS. In April 2011, EPA finalized two determinations regarding attainment for the Truckee Meadows PM₁₀ non-attainment area. First, EPA determined, based on monitoring data for 1999 to 2001, the Truckee Meadows area did not attain the 24-hour NAAQS for PM₁₀ by the attainment date of December 31, 2001. Second, EPA determined that the Truckee Meadows area is currently attaining the PM₁₀ NAAQS based on monitoring data during the years 2007 to 2009. Preliminary data through June 2010 is also consistent with continued attainment of the PM₁₀ NAAQS. However, this does not change the current non-attainment designation.

Washoe County revised the CO SIP in September 2005 requesting redesignation as a maintenance area since Hydrographic Area 87 has not had an exceedance of the CO NAAQS since 1991. The redesignation of the CO standard became effective in August 2008.³

3.8.3 Methods

This section provides the general methods used to conduct the air quality analyses, while providing background information on the criteria pollutants analyzed.

As required by the EPA conformity rule (40 CFR 93.105), an interagency coordination (IAC) meeting was held on January 5, 2012 with RTC, NDOT, FHWA, and EPA. The Washoe County Air Quality Management Division, which is part of the Reno/Sparks area IAC, could not attend the meeting but reviewed the proposed methods. This meeting was held to discuss the methodology and approach for the air quality analyses.

3.8.3.1 Carbon Monoxide

EPA's CAL3QHC computer model was used to assess CO emissions for this project. CAL3QHC is a microcomputer-based model that predicts CO pollutant concentrations from motor vehicles at roadway intersections. The CAL3QHC model accounts for emissions from both moving and idling vehicles. Inputs for the model included projected traffic volumes, motor vehicle emission rates, roadway geometries, traffic signal timing, and worst-case meteorological conditions. Motor vehicle emission rates were estimated using EPA's MOBILE6.2 emission factor model. Inputs for the MOBILE6.2 model included vehicle mix, running speeds, ambient temperature, and vehicle hot/cold start operating percentages.

The methodology for this air quality analysis was consistent with the two EPA guidance manuals related to intersection "hot-spot" analysis:

1. *Guidelines for Modeling Carbon Monoxide from Roadway Intersections*, EPA, November 1992.
2. *User's Guide to CAL3QHC Version 2.0: A Modeling Methodology for Predicting Pollutant Concentrations Near Roadway Intersections*, EPA, November 1992.

The intersection of Pyramid Highway and Disc Drive has the highest traffic volumes, and the intersection of Pyramid Highway and Lazy 5 Parkway is the worst operating intersection. Therefore, these two intersections were selected for the hot spot analysis. It is assumed that if no exceedances of the CO NAAQS would occur at the selected intersections, lower volume/delay intersections would also not exceed NAAQS and would therefore be in compliance.

3.8.3.2 Particulate Matter

Section 40 CFR 93.116 of the transportation conformity rule states that a project-level conformity determination in a PM₁₀ non-attainment or maintenance area must document that no new local PM₁₀ violations would be created, and the severity or number of existing violations would not be increased as a result of the proposed project. As described in the EPA Guidance of December 2010, a quantitative hot spot analysis is required for projects of air quality concern (POAQC). According to the EPA Transportation Conformity Guidance (Final Rule of December 2010), POAQC typically include a significant number or significant increase in diesel vehicles.



For this project, there would not be a significant number of, or significant increase in, diesel vehicles. Diesel vehicles in the Study Area make up less than 5 percent of the total roadway volumes and are anticipated to remain the same for future 2035 conditions. A new bus route with local stops is proposed. However, it is anticipated that two buses per hour per direction of travel would use the proposed route, which is not a significant number of buses.

This project may be phased because of funding issues. The likely result of this is that the traffic increases along Pyramid Highway would occur in later years when emission factors would be lower.

There are no sites in violation or possible violation of the NAAQS. A revision to the PM₁₀ SIP was submitted to EPA requesting redesignation of Hydrographic Area 87 to attainment/maintenance of the 24-hour NAAQS. Therefore, based on the information above, this project is not considered a POAQC, and a project-level PM₁₀ analysis is not required. RTC, NDOT, FHWA, and EPA concurred with this finding in the interagency coordination (IAC) meeting held on January 5, 2012.

Washoe County is currently designated as an attainment area for PM_{2.5}. Therefore, a project level PM_{2.5} hot spot analysis is not required.

3.8.3.3 Construction

Construction activities are a source of dust and exhaust emissions that can have substantial impacts on local air quality (i.e., exceed state air quality standards for ozone, CO, PM₁₀, and PM_{2.5}). This includes emissions resulting from earth moving and use of heavy equipment, as well as land clearing, ground excavation, cut-and-fill operations, and the roadway construction. Emissions can vary substantially from day to day, depending on the level of activity, the specific operations, and the prevailing weather. A major portion of dust emissions for the project would likely be caused by construction traffic on temporary areas. Because construction of the project is expected to last less than five years per phase, calculation of construction-related emissions is not required and was not considered in the hot-spot analysis.

3.8.4 Existing Conditions

The WCAQMD has six air quality monitoring stations throughout Washoe County that monitor concentrations of criteria pollutants. The closest monitoring station to the Study Area is located at 750 4th Street in the City of Sparks. Table 3-24 summarizes the concentrations for criteria pollutants in Washoe County.

3.8.5 Air Quality Impacts

3.8.5.1 No-Action Alternative

There are no proposed improvements under the No-Action Alternative. Therefore, the No-Action Alternative would result in an increase in peak hour traffic volumes compared to existing conditions. Pyramid Highway, Sun Valley Boulevard, and US 395 would continue to experience severe traffic congestion, which would contribute to increased vehicle emissions.

3.8.5.2 Build Alternatives

PM₁₀

According to the Truckee Meadows PM₁₀ SIP, VMT was projected to almost double from 1990 to 2005. However, PM₁₀ emissions have declined as a result of federal, state, and local control measures. There have been no violations of the PM₁₀ NAAQS since 1999. There was an exceedance in 2005 due to record snowstorms and strong temperature inversions. However, since exceedances of PM₁₀ emissions were less than one per year, Truckee Meadows has attained the PM₁₀ NAAQS in accordance with 40 CFR 50.6.

Table 3-24. Monitoring Stations in Washoe County

Monitoring Station	Pollutant	Monitoring Year				
		2006	2007	2008	2009	2010
301 A State Street (Reno)	CO 1-hour (ppm)	3.5	3.5	2.5	2.9	2.6
	CO 8-hour (ppm)	2.9	2.2	1.6	2.1	1.8
	PM ₁₀ 24-hour (µg/m ³)	91	69	92	78	142
4110 Delucci Lane (South Reno)	CO 1-hour (ppm)	2.5	2.2	1.7	1.9	1.9
	CO 8-hour (ppm)	1.9	1.8	1.3	1.5	1.4
	PM ₁₀ 24-hour (µg/m ³)	58	75	111	59	52
305 Galletti Way (Galletti)	CO 1-hour (ppm)	4.8	4.1	3.4	3.0	2.7
	CO 8-hour (ppm)	3.2	3.3	2.4	2.3	1.9
	PM ₁₀ 24-hour (µg/m ³)	118	130	87	91	87
684 A State Route 341 (Toll Road)	CO 1-hour (ppm)	2.2	1.9	1.7	1.6	1.2
	CO 8-hour (ppm)	1.4	1.2	0.9	1.4	0.9
	PM ₁₀ 24-hour (µg/m ³)	47	43	64	46	34
891 E Plumb Lane (Plumb-Kietzke)	PM ₁₀ 24-hour (µg/m ³)	91	108	86	93	77
750 4 th Street (Sparks)	CO 1-hour (ppm)	4.5	4.7	4.2	4.2	3.1
	CO 8-hour (ppm)	3.0	3.1	2.8	2.9	2.6
	PM ₁₀ 24-hour (µg/m ³)	76	76	101	67	55
325 Patrician Drive (Lemmon Valley)	CO 1-hour (ppm)	3.4	3.3	1.9	2.6	1.8
	CO 8-hour (ppm)	1.9	1.8	1.5	1.5	1.3

Sources: EPA and Washoe County, 2011.

ppm=parts per million.

g/m³=micrograms per cubic meter.



Carbon Monoxide

As shown in Table 3-25, the highest modeled 8-hour average concentration was 5.03 ppm associated with the poorly operating intersection of Pyramid and Disc Drive for Alternative 4. This value is less than the federal 8-hour CO NAAQS of 9 ppm. Therefore, because the project-level CO analyses resulted in no exceedances of the NAAQS at any of the identified intersections representing the highest volume and worst operations within the Study Area, project-level conformity has been met.

Park and ride facilities would be constructed to serve both transit users and carpoolers along Pyramid Highway at Calle de la Plata, Eagle Canyon Drive, and Los Altos Parkway. These lots would include approximately 80, 80, and 165 parking spaces, respectively. The number of cars using the park and ride facilities would result in a minor increase in idling traffic in the Study Area. Therefore, potential increases in CO concentrations that could result are discussed below.

Table 3-25. Results of Hot Spot Analyses for Carbon Monoxide

2035 Traffic Volume (vph)	NAAQS 1-hour Standard CO (ppm)	Maximum 1-Hour CO Concentration (ppm)	NAAQS 8-hour Standard CO (ppm)	Maximum 8-Hour CO Concentration (ppm)
Pyramid Highway and Lazy 5 Parkway—No-Action Alternative				
6,133 (AM)	35	7.74	9	4.54
6,210 (PM)	35	7.74	9	4.54
Pyramid Highway and Disc Drive—No-Action Alternative				
5,240 (AM)	35	6.74	9	3.84
5,921 (PM)	35	7.34	9	4.26
Pyramid Highway and Disc Drive—Alternative 1				
7,702 (AM)	35	8.04	9	4.75
8,193 (PM)	35	7.64	9	4.47
Pyramid Highway and Disc Drive—Alternative 2				
7,883 (AM)	35	8.04	9	4.75
8,420 (PM)	35 ppm	8.44	9 ppm	5.03
Pyramid Highway and Disc Drive—Alternative 3				
6,872 (AM)	35 ppm	7.64	9 ppm	4.47
7,395 (PM)	35 ppm	7.54	9 ppm	4.40
Pyramid Highway and Disc Drive—Alternative 4				
7,703 (AM)	35 ppm	7.84	9 ppm	4.61
8,210 (PM)	35 ppm	8.44	9 ppm	5.03

ppm = parts per million

All of the CO concentrations analyzed in the hot-spot analysis for the project were well below the federal 1-hour and 8-hour standards. The highest background CO concentrations registered in the past five years in the Study Area were less than 30 percent of the federal 1-hour and 8-hour standards. Therefore, it is unlikely that the minor traffic increases associated with the park and ride facilities would generate CO levels that create an exceedance of the federal standard.

Construction Impacts

Construction is not expected to last longer than five years at any one location in the Study Area. Therefore, long-term air quality effects are not anticipated as a result of the project. However, short-term air quality effects due to construction activities are anticipated. This includes emissions resulting from earthmoving and use of heavy equipment, as well as land clearing, ground excavation, cut-and-fill operations, and the construction of roadways.

3.8.6 Air Quality Mitigation

This project meets the CAA and its amendment conformity requirements and is not expected to exceed the NAAQS. Therefore, mitigation measures are not required. However, compared to the No-Action Alternative, an increase in pollutant emissions (associated with increases in VMT) is anticipated with the build alternatives.

There are regional and local agency strategies that could be used to reduce criteria pollutants and MSAT emissions, especially diesel particulate matter from existing diesel engines. These include, but are not limited to:

- Tailpipe retrofits.
- Closed crankcase filtration systems.
- Clean fuels.
- Engine rebuild and replacement requirements.
- Contract requirements.
- Anti-idling ordinances and legislation.
- Truck stop electrification programs.
- Aggressive fleet turnover policies.

Implementation of a vehicle purchase/recycle program would also help to reduce air pollution in the Study Area by reducing highly polluting vehicles off the road.

The State of Nevada has implemented several programs to reduce air emissions from mobile sources as control strategies and contingency measures for non-attainment and maintenance areas. These programs include Federal Motor Vehicle Control Program, Nevada's Motor Vehicle Inspection and Maintenance Program, Washoe County Oxygenated Fuel Program, Street Sanding and Sweeping Program, and Dust Control.

Construction Mitigation

Construction activities and unpaved roads are a major contributor to fugitive dust (PM₁₀) emissions. The project is anticipated to disturb one acre or more of land. Therefore, the project area will be subject to a dust control permit from the WCAQMD



(regulation 040.030 of the District Board of Health Regulations). A Dust Mitigation Plan will also need to be prepared and submitted. Practical measures to control dust, such as watering of construction areas, will be incorporated into the plans and specifications for the construction phase of the project in accordance with NDOT's Standard Specifications for Road and Bridge Construction.

RTC and/or NDOT will require mitigation measures for construction activities associated with any of the build alternatives. These measures may include:

- Preparing an air quality mitigation plan that describes all feasible measures to reduce air quality impacts resulting from construction activities.
- Requiring all construction contractors to:
 - ◆ Obtain a Dust Control Permit from the Washoe County District Health Department, Air Quality Management Division.
 - ◆ Be in compliance with the National Pollutant Discharge Elimination System (NPDES) General Permit for erosion control due to stormwater and construction-related runoff from the construction sites. As part of this compliance, the contractor will be required to submit and maintain a Storm Water Pollution Prevention Plan (SWPPP) on site that will include Best Management Practices (BMP) to be implemented and maintained during construction.
 - ◆ Ensure that all construction equipment is properly tuned and maintained
 - ◆ Limit vehicle speeds to 15 mph on work sites, unpaved roads, and in parking areas.
 - ◆ Cover haul trucks when transferring materials.
 - ◆ Install trackout control devices at access points to minimize trackout dirt.
 - ◆ Minimize Idling time to 10 minutes to save fuel and reduce emissions.
 - ◆ Have an operational water truck on site at all times. Water will be applied to control dust as needed to prevent dust impacts off site.
 - ◆ Use existing power sources or clean fuel generators rather than temporary power generators.
 - ◆ Minimize obstructions of through traffic lanes, including accommodating two directional traffic on existing street during construction. Construction will not be allowed in existing signalized intersections during AM and PM peak commuting hours. Flaggers will be provided to guide traffic properly minimizing congestion and to ensure safety at construction sites.
- Traffic control plans will be developed for work on existing road facilities to maintain traffic during construction and to minimize traffic flow interference from construction equipment movement and activities. Plans may include advance public

notice of road construction, detours, alternate routes, use of public transportation, and satellite parking areas with a shuttle service. Operations affecting traffic for off-peak hours will be scheduled whenever reasonable.

3.8.7 Transportation Conformity

The FHWA controls federal funding of highway projects and programs. Federal funding can only be approved for projects that are in compliance with EPA's transportation air quality conformity regulations in Chapter 40 of the CFR Part 51(T) and the criteria outlined in 40 CFR 93 (A) for conformity determination.

Under Section 93.116 of the Transportation Conformity Rule, a transportation project in a non-attainment or maintenance area must demonstrate conformity to SIP or maintenance plans. The transportation conformity regulations require that the project is included in a conforming Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP), and the project does not cause or contribute to any new or existing violations of NAAQS.

3.8.7.1 Regional Conformity

The project is federally funded and is included in the RTC's 2030 RTP and the 2014 TIP. The 2030 RTP was approved by RTC on November 13, 2008, and by FHWA on March 3, 2009. The 2014 TIP amendment was adopted by RTC on August 12, 2010.

The 2030 RTP is currently being updated and scheduled for completion by June 2013. As mentioned above, the project could be broken into phased components by that time, and the extent of those phased components is not yet known.

3.8.7.2 Project-Level Conformity

The results of the project-level CO hot spot analysis indicated that the project would meet the transportation conformity requirements since the build alternatives and the No-Action Alternative would not cause or contribute to any new localized CO violations, increase the frequency or severity of any existing violations, or delay timely attainment of the CO NAAQS.

This project also meets the conformity requirements for PM₁₀ since this project is not considered a POAQC.

The Final EIS will contain the conformity determination. In addition, updates to the air quality analysis may need to be completed depending on the revised RTP. Results of the revised analysis would be included in the Final EIS.



3.8.8 Mobile Source Air Toxics

The *Air Quality Technical Report* (June 2012) provides the full MSAT analysis conducted for this study, and is incorporated by reference. This section provides a summary of the MSAT analysis.

US 395 is anticipated to exceed an average annual daily traffic (AADT) volume of 180,000, greater than the threshold of 140,000, south of the Parr Boulevard interchange. Because of these traffic volumes, and since US 395 is in the Study Area, a basic quantitative analysis was required to assess Mobile Source Air Toxics (MSATs) effects for the regional Study Area. The regional Study Area used for the traffic analysis includes all major roadways potentially affected by the proposed new transportation facility.

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts resulting from changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action. The *Air Quality Technical Report* (June 2012) provides additional information about unavailable information for project specific MSAT impact analyses

Project Level MSAT Analysis

The results of the MSAT analysis concluded that the build alternatives would generate between 0.09 and 7.13 higher tons of emissions than the No-Action Alternative in 2035. Alternative 4 is anticipated to have the highest MSAT emissions.

The localized increases in MSAT emissions would likely be most pronounced along the roadway sections with the highest VMT. Potential impacts from MSAT are greatest near highly developed residential areas and major intersections. Potential impacts would be greatest near congested intersections such as Pyramid Highway and Queen Way and Disc Drive and Vista Boulevard where there are sensitive receptors. In general, emissions would be higher (compared to the No-Action Alternative) as roadways move closer to receivers. Alternatives 2 and 4 have the potential of moving closer to receivers along the segment of Pyramid Highway from Disc Drive to Sparks Boulevard where a six-lane freeway with frontage roads is proposed.

Regardless of the alternative chosen, MSAT emissions would likely be lower than present levels in the future year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by 80 percent between 2010 and 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great that MSAT emissions in the regional Study Area would

likely be lower in the future in nearly all cases. Please refer to the *Air Quality Technical Report*, June 2012, for more detail.

Mitigation Measures for MSAT Emissions

Localized increases in MSAT emissions are anticipated within the study area near congested intersections and where roadways move closer to receivers. Concrete barriers and screening walls are recommended in some of these areas as a result of noise impacts which would also help to reduce MSAT emissions.

Although regional impacts are not anticipated due to EPA's national control programs, regional and local agency strategies, discussed above in Section 3.8.6, could help reduce emissions.

Construction activity may generate a temporary increase in MSAT emissions. Section 3.8.6 above summarizes mitigation measures for reducing MSAT emissions.

3.8.9 Greenhouse Gas Emissions

Climate change is an important national and global concern. While the earth has gone through many natural changes in climate in its history, there is general agreement that the earth's climate is currently changing at an accelerated rate and will continue to do so for the foreseeable future. Carbon dioxide (CO₂) makes up the largest component of these GHG emissions.

To date, no national standards have been established regarding GHGs, nor has EPA established criteria or thresholds for ambient GHG emissions pursuant to its authority to establish motor vehicle emission standards for CO₂ under the Clean Air Act. However, there is a considerable body of scientific literature addressing the sources of GHG emissions and their adverse effects on climate, including reports from the Intergovernmental Panel on Climate Change, the US National Academy of Sciences, and EPA and other Federal agencies. GHGs are different from other air pollutants evaluated in Federal environmental reviews because their impacts are not localized or regional due to their rapid dispersion into the global atmosphere, which is characteristic of these gases. The affected environment for CO₂ and other GHG emissions is the entire planet. In addition, from a quantitative perspective, global climate change is the cumulative result of numerous and varied emissions sources (in terms of both absolute numbers and types), each of which makes a relatively small addition to global atmospheric GHG concentrations. In contrast to broad scale actions such as actions involving an entire industry sector or very large geographic areas, it is difficult to isolate and understand the GHG emissions impacts for a particular transportation project. Furthermore, presently there is no scientific methodology for attributing specific climatological changes to a particular transportation project's emissions.



Under NEPA, detailed environmental analysis should be focused on issues that are significant and meaningful to decision-making.¹ FHWA has concluded, based on the nature of GHG emissions and the exceedingly small potential GHG impacts of the proposed action, as discussed below, that the GHG emissions from the proposed action will not result in “reasonably foreseeable significant adverse impacts on the human environment” (40 CFR 1502.22(b)). The GHG emissions from the project build alternatives will be insignificant, and will not play a meaningful role in a determination of the environmentally preferable alternative or the selection of the preferred alternative. More detailed information on GHG emissions “is not essential to a reasoned choice among reasonable alternatives” (40 CFR 1502.22(a)) or to making a decision in the best overall public interest based on a balanced consideration of transportation, economic, social, and environmental needs and impacts (23 CFR 771.105(b)). For these reasons, no alternatives-level GHG analysis has been performed for this project. A more general assessment for the build alternatives is provided below, and Section 3.24 *Cumulative Effects* discusses cumulative air quality effects.

3.8.9.1 Environmental Consequences of GHG Emissions

Based on emissions estimates from EPA’s Motor Vehicle Emissions Simulator (MOVES) model², and global CO₂ estimates and projections from the Energy Information Administration, CO₂ emissions from motor vehicles in the entire state of Nevada contributed less than one tenth of one percent of global emissions in 2010 (0.0348 percent). These emissions are projected to contribute an even smaller fraction (0.0261 percent) in 2035³. Vehicle miles traveled (VMT) in the project study area represent 13.9 percent of total Nevada travel activity; and the project itself would increase statewide VMT by 0.036 percent. (Note that the project study area, as defined for the MSAT analysis, includes travel on many other roadways in addition to the proposed project.) As a result, based on the build alternative with the highest VMT⁴, FHWA estimates that the proposed project could result in a potential increase in global CO₂ emissions in 2035 of 0.00009 percent (less than one thousandth of one percent), and a corresponding increase in Nevada’s share of global emissions in 2035 of 0.036 percent. This very small change in global emissions is well within the range of uncertainty associated with future emissions estimates.^{5, 6}

¹ See 40 CFR 1500.1(b), 1500.2(b), 1500.4(g), and 1501.7

² <http://www.epa.gov/otaq/models/moves/index.htm>. EPA’s MOVES model can be used to estimate vehicle exhaust emissions of carbon dioxide (CO₂) and other GHGs. CO₂ is frequently used as an indicator of overall transportation GHG emissions because the quantity of these emissions is much larger than that of all other transportation GHGs combined, and because CO₂ accounts for 90-95% of the overall climate impact from transportation sources. MOVES includes estimates of both emissions rates and VMT.

³ Nevada emissions represent a smaller share of global emissions in 2035 because global emissions increase at a faster rate.

⁴ Selected to represent a “worst case” for purposes of this comparison; the Preferred Alternative may have a smaller contribution.

⁵ For example, Figure 114 of the Energy Information Administration’s *International Energy Outlook 2010* shows that future emissions projections can vary by almost 20%, depending on which scenario for future economic growth proves to be most accurate.

3.8.9.2 Mitigation for GHG Emissions

In an effort to assist States and MPOs in performing GHG analyses, FHWA has developed a Handbook for Estimating Transportation GHG Emissions for Integration into the Planning Process. The Handbook presents methodologies reflecting good practices for the evaluation of GHG emissions at the transportation program level, and will demonstrate how such evaluation may be integrated into the transportation planning process. FHWA has also developed a tool for use at the statewide level to model a large number of GHG reduction scenarios and alternatives for use in transportation planning, climate action plans, scenario planning exercises, and in meeting state GHG reduction targets and goals. To assist states and MPOs in assessing climate change vulnerabilities to their transportation networks, FHWA has developed a draft vulnerability and risk assessment conceptual model and has piloted it in several locations.

Even though project-level mitigation measures will not have a substantial impact on global GHG emissions because of the exceedingly small amount of GHG emissions involved, the measures during construction, as discussed in the mitigation section above, will have the effect of reducing GHG emissions. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. In addition, with such innovations as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

⁶When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency is required make clear that such information is lacking (40 CFR 1502.22). The methodologies for forecasting GHG emissions from transportation projects continue to evolve and the data provided should be considered in light of the constraints affecting the currently available methodologies. As previously stated, tools such as EPA's MOVES model can be used to estimate vehicle exhaust emissions of carbon dioxide (CO₂) and other GHGs. However, only rudimentary information is available regarding the GHG emissions impacts of highway construction and maintenance. Estimation of GHG emissions from vehicle exhaust is subject to the same types of uncertainty affecting other types of air quality analysis, including imprecise information about current and future estimates of vehicle miles traveled, vehicle travel speeds, and the effectiveness of vehicle emissions control technology. Finally, there presently is no scientific methodology that can identify causal connections between individual source emissions and specific climate impacts at a particular location.



3.9 TRAFFIC NOISE

This section discusses existing traffic noise conditions in the Study Area and summarizes traffic noise effects from the build alternatives. The purpose of this analysis is to identify all receptors impacted by traffic noise as a result of the build alternatives. The objective of this analysis is to assess traffic noise abatement measures for all impacted receptors. For details, please refer to the *Pyramid Highway and US 395 Connection Traffic Noise Technical Report* (RTC, 2012).

3.9.1 Noise Standards and Criteria

The FHWA Noise Abatement Criteria (NAC) defines noise levels for land activity categories. NDOT has adopted these NAC and defines noise levels that if approached (1 dBA less than the FHWA NAC) or exceeded, require noise abatement consideration. Table 3-26 shows various activity categories. FHWA guidelines also state that noise abatement should be considered when the noise levels substantially exceed the existing noise levels (23 CFR 772.5(g)). This criterion is defined by NDOT as increases in the Leq of 15.0 dBA or more above existing noise levels.

Table 3-26. Noise Abatement Criteria, Hourly A-Weighted Sound Level Decibels (dBA)

Activity Category	Activity Leq(h)	Evaluation Location	Description of Activities
A	56	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B†	66	Exterior	Residential
C†	66	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	51	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E†	71	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A – D or F.
F	NA	NA	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	NA	NA	Undeveloped lands that are not permitted for development.

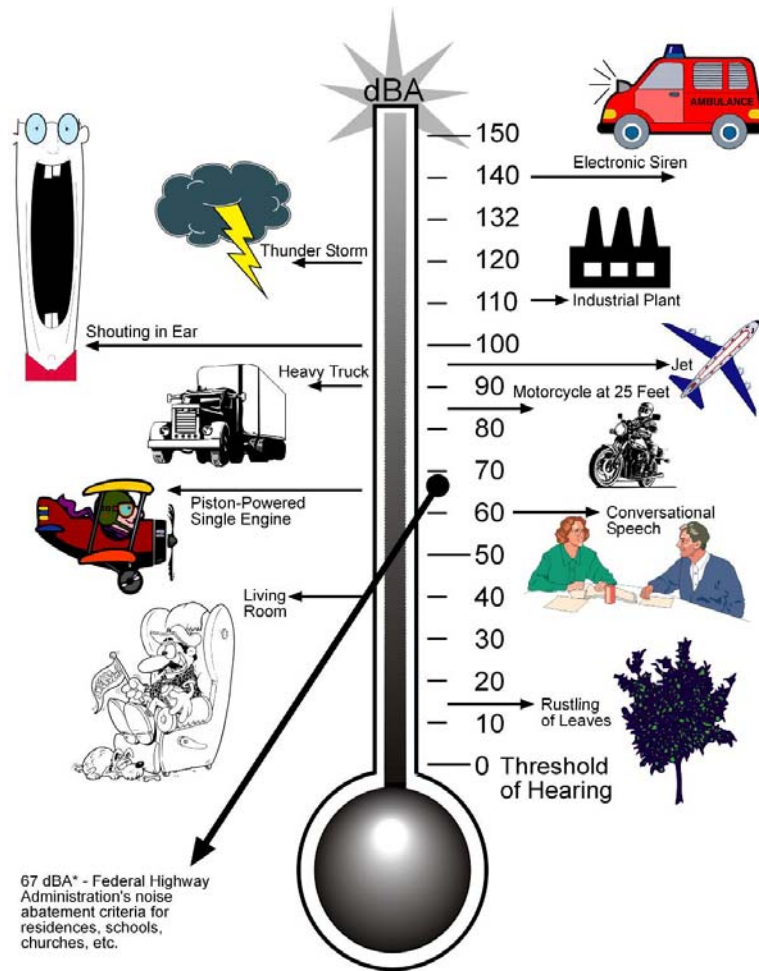
Source: Nevada Department of Transportation, Traffic and Construction Noise Analysis and Abatement Policy, July 2011.

* Hourly A-weighted sound level in dBA, reflecting a 1-dBA approach value below 23CFR772 values.

† Includes undeveloped lands permitted for this activity category.

3.9.2 Noise Fundamentals

Noise is defined as unwanted sound. The terms noise and sound are used synonymously. Sound is measured in sound pressure levels (SPL). The most common unit of measurement is a decibel, dB. For the purposes of environmental studies, the A-weighted scale on a common sound level instrument is used since this scale closely approximates the range of frequencies an average human ear can detect. The A-weighted noise levels are defined as dBA. Figure 3-27 shows typical A-weighted noise levels.



Sound Level Comparisons

* The Federal Highway Administration's noise abatement criteria are listed as dBA. dBA is a time weighted value for noise. dB represents an individual noise event. dBA for a noise source is generally less than dB.

Figure 3-27. Examples of Common Outdoor Noise and dB(A) Levels



3.9.3 Methods

The methodology employed for this analysis is consistent with both FHWA and NDOT guidelines for analyzing traffic noise.

The Study team used FHWA's approved Traffic Noise Model (TNM) 2.5 for this analysis to estimate the traffic noise levels at identified noise-sensitive receptors for existing (2007), no-action (2035), and build (2035) conditions. The basic inputs to noise modeling include roadway network layout, site characteristics, peak hour traffic volume projections, fleet mix, and vehicular operating speeds. Computer modeling is used because variations in the traffic and/or weather conditions that affect noise levels cannot be captured or quantified by brief noise measurements alone and because future noise levels cannot be measured now. The modeling results represent typical average traffic conditions.

3.9.4 Traffic Data

According to referenced regulation and policies, the noise analysis must use traffic volumes that yield the worst hourly traffic noise impact on a regular basis for the design year. Roadways operating at a LOS C generally provide worst case data and are used to simulate free flowing traffic conditions where traffic volumes and speeds represent the loudest traffic noise conditions. Section 1.5.2.1 *Intersection LOS – Existing* has a description of LOS. A LOS D or worse simulates stop and go traffic, which in turn does not generate the highest traffic noise levels. Therefore, LOS C or better traffic volumes were used where roadways would operate at LOS D or worse. Actual traffic counts were used where roadways would operate at LOS C or better. The traffic mix was assumed to be approximately 95 percent automobiles and 4.06 and 4.88 percent trucks along arterials and freeways, respectively. The posted speed limit varies throughout the project corridor.

3.9.5 Existing Conditions

3.9.5.1 Noise-Sensitive Receptors

Noise-sensitive receptors are those areas where frequent exterior human use would occur that may be impacted by existing and/or future transportation conditions. The traffic noise analysis considered all noise-sensitive receptors that could be impacted by the project, which are listed below. Since there are numerous receptors within the Study Area, representative receptors were selected in each area/subdivision to show where traffic impacts would occur and, subsequently, where impacts would not occur. Figure 3-28 depicts the noise-sensitive receptors in the Study Area.

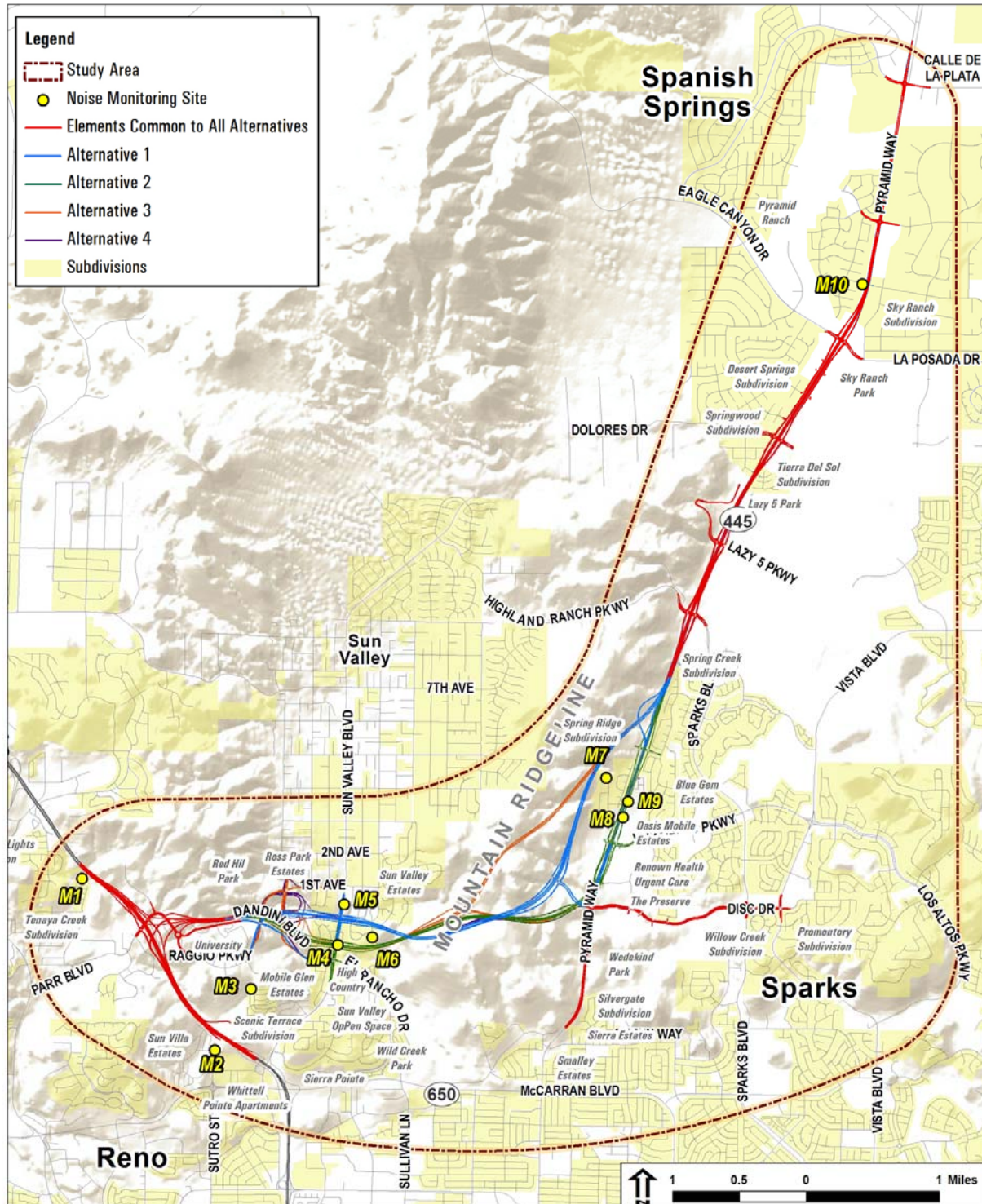


Figure 3-28. Noise-Sensitive Receptors and Field Monitoring Sites in the Study Area



There were no Category A land use activities identified in the Study Area. Most of the noise-sensitive receptors in the Study Area are classified as Category B land use activities, which includes residential development and mobile homes. Category C activities were identified in the Study Area, which includes places of worship, a library, school, and recreational areas. Category D activities (indoor noise levels) were considered where there were no exterior uses identified. In accordance with the FHWA 2011 noise policy, the interior noise levels were determined by applying a 10 dB noise reduction factor to the exterior noise levels. A 10 dB noise reduction factor was used since this represents all building types and a worst case scenario. Category E activities, such as restaurants, were identified in the Study Area. However, frequent exterior uses were not identified and, therefore, not included in this analysis. Category F activities, such as retail facilities, agricultural, and emergency services, were identified in the Study Area. However, these activities are not considered noise-sensitive sites and were therefore not included in the traffic noise analysis. There are several planned developments in the Study Area. The Study team coordinated with local planners to determine the status of various planned developments. None of these undeveloped projects had attained permits for development and were, therefore, considered Category G activities for which a traffic noise analysis is not required.

3.9.5.2 Noise Monitoring Locations

The Study team conducted field noise monitoring during January and October 2010 at ten locations in the Study Area to determine ambient noise levels. Due to numerous sensitive receptors within the Study Area, representative locations were chosen along each of the project corridors to collect ambient noise conditions in those areas. Figure 3-28 shows the locations of all field noise monitoring sites. Noise monitoring was conducted during peak hours (7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.) when traffic volumes and speeds are typically the highest. Short-term noise monitoring was conducted for 15 minutes for each event as required by FHWA. Traffic counts, by vehicle type, were collected simultaneously with each noise monitoring event. Operating speeds and existing geometry were also collected and input into the FHWA approved TNM 2.5 for validation.

The difference between the field recordings and the model-predicted noise levels for ground receptors was less than three A-weighted decibels (dBA), which is considered validated. According to FHWA, the TNM is considered validated when the difference in the field-recorded noise levels and the TNM-predicted noise levels is three dBA or less because the human ear can detect change over three dBA.

3.9.5.3 Existing Noise

Noise models were developed to evaluate existing conditions beyond the field measurements. The model included existing concrete walls near several subdivisions, since these can affect existing noise levels.

Dominant sources of traffic noise in the Study Area include US 395, Sun Valley Boulevard, and Pyramid Highway. Under existing conditions, there are approximately 165 noise-sensitive receptors impacted by traffic noise. Noise levels range from 45 dBA to 71 dBA along the project corridors.

3.9.6 Noise Impacts

Traffic noise impacts were assessed to show whether traffic noise levels would be high enough to impact the neighboring properties, and whether noise mitigation should be provided for these impacts.

Note the determination to relocate a business or resident was based on the impacts to the buildings and not just to the properties. If the building itself fell within the design footprint, then the property was a take requiring relocation. However, if the building fell outside of the design footprint and only impacted a portion of the property, then it was considered a partial take but not a relocation.

3.9.6.1 No-Action Alternative

Under the No-Action Alternative, approximately 205 noise-sensitive receptors would experience traffic noise levels that meet or exceed the NAC of 66 dBA in 2035. Traffic noise levels range from 48 dBA to 74 dBA along the project corridors.

Although traffic noise impacts are anticipated, no project-related improvements are proposed under the No-Action Alternative. Therefore, traffic noise abatement was not considered for No-Action Alternative impacts.

3.9.6.2 Build Alternatives

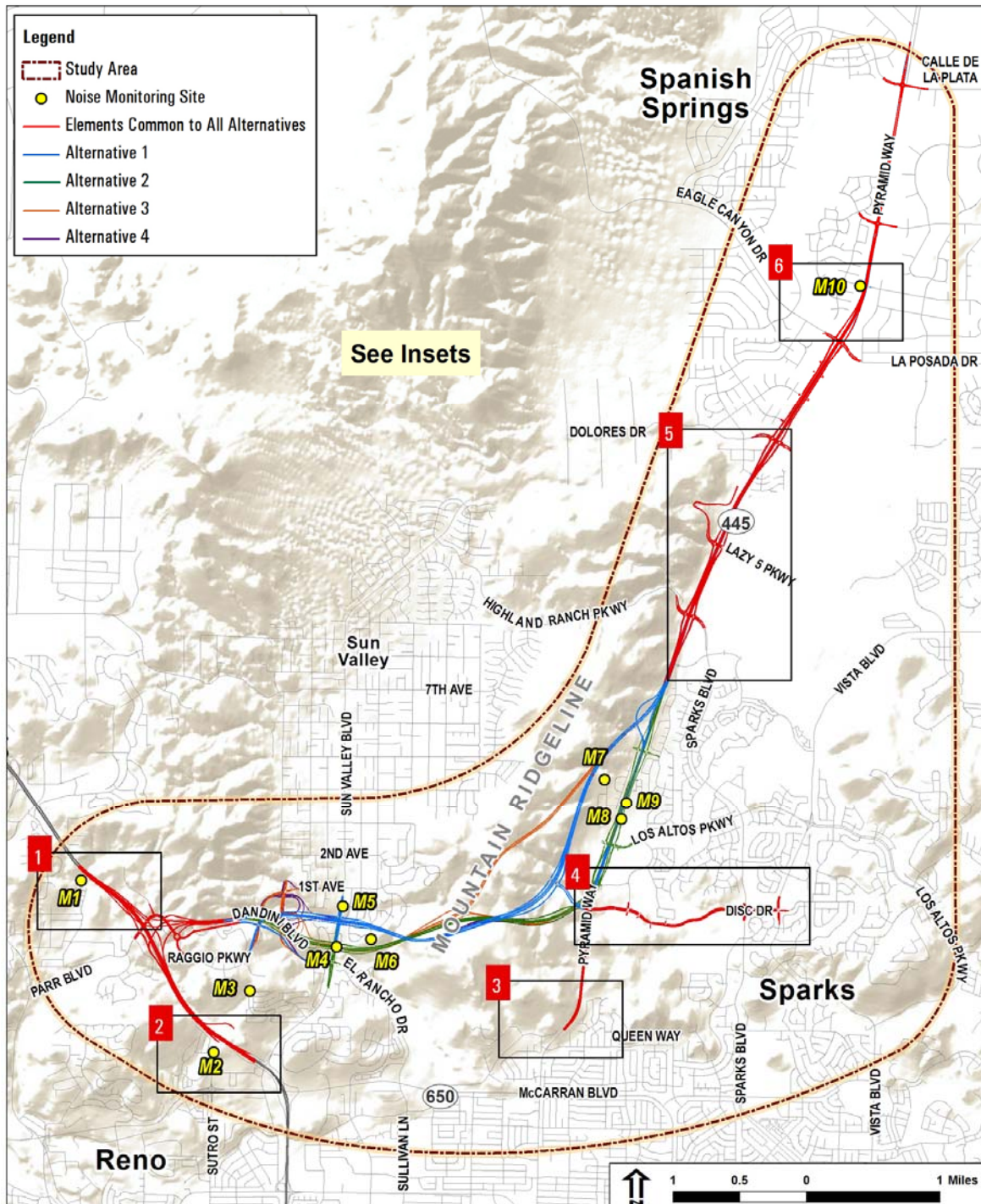
Impacts Common to All Build Alternatives

The following summarizes impacts that are common to all build alternatives, where the build alternatives share common elements. Figure 3-29 shows the location of traffic noise impacts common to all build alternatives. Figure 3-30 and Figure 3-31 show detailed noise impacts and potential property acquisitions as a result of all build alternatives.

The proposed improvements along portions of US 395, Pyramid Highway south of Disc Drive and north of Sparks Boulevard, and Disc Drive are the same for all build alternatives. Also, traffic volumes along these corridors would be similar for all build alternatives. Therefore, traffic noise impacts would also be similar between the build alternatives.



1

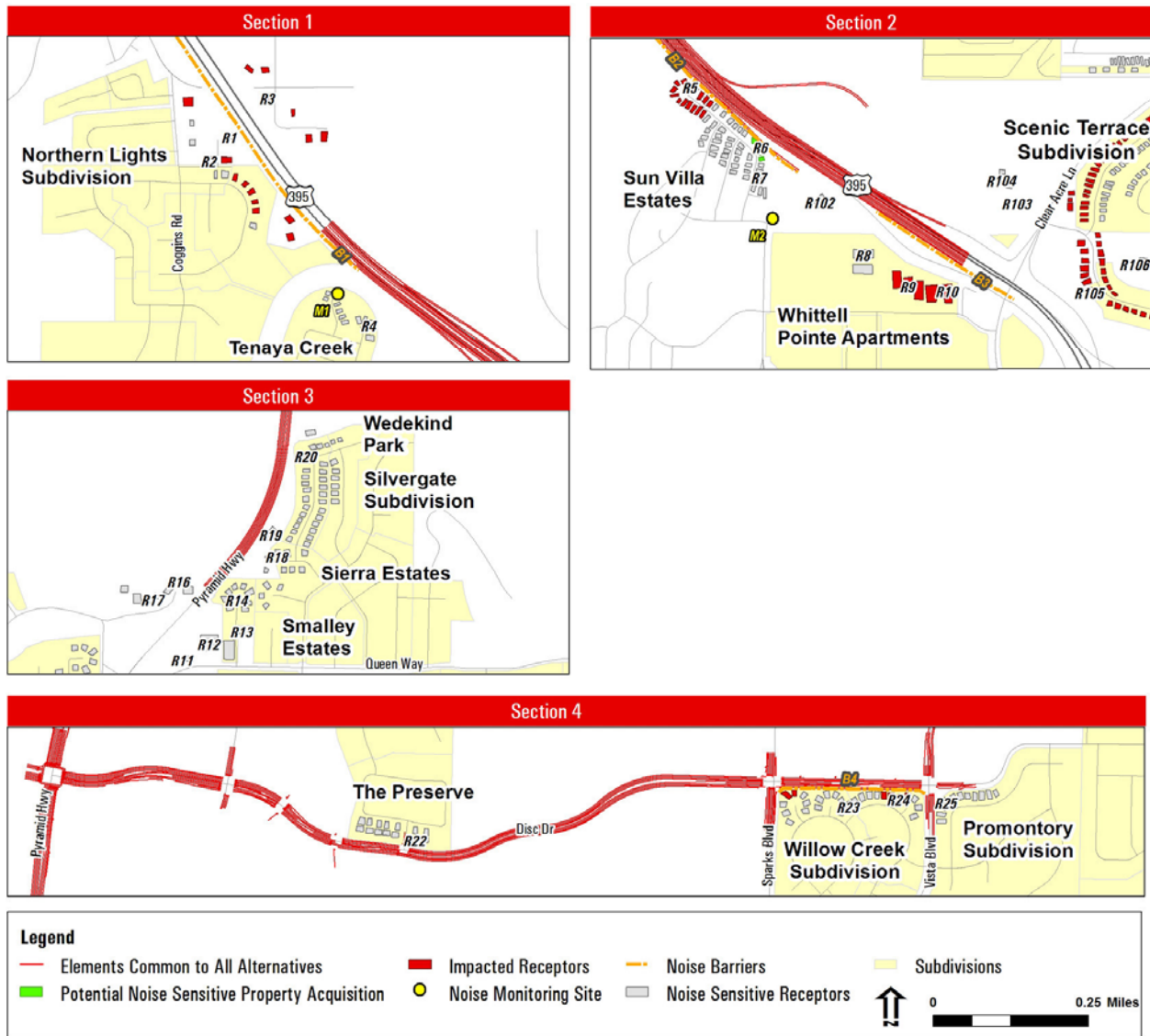


Note: Insets are shown on Figure 3-30 and Figure 3-31.

Figure 3-29. Traffic Noise Impacts Common to All Build Alternatives – Overview Map

2

1



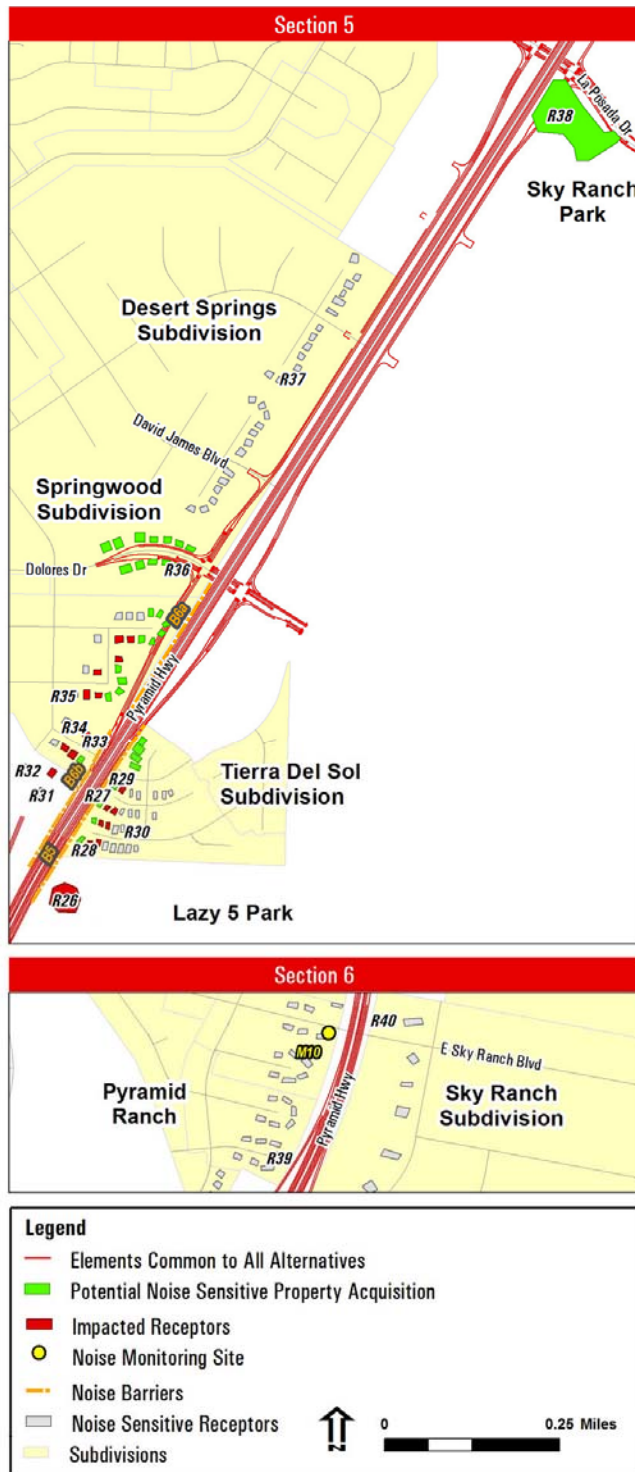
Note: "Potential Noise Sensitive Property Acquisition" refers to noise sensitive properties that would be acquired because of right-of-way required to construct proposed improvements, and, therefore, were not evaluated for noise impacts.

Figure 3-30. Traffic Noise Impacts Common to All Build Alternatives

2



1



Note: "Potential Noise Sensitive Property Acquisition" refers to noise sensitive properties that would be acquired because of right-of-way required to construct proposed improvements, and, therefore, were not evaluated for noise impacts.

Figure 3-31. Traffic Noise Impacts Common to All Build Alternatives

The build alternative sections that have common elements would result in approximately 37 potential property acquisitions within the following subdivisions: Sun Villa Estates, Tierra Del Sol, Springwood, and Desert Springs. In addition, Sky Ranch Park would be acquired. Therefore, traffic noise levels at these properties were not modeled.

Improvements common to all build alternatives would result in traffic noise levels that would meet or exceed the NAC of 66 dBA at approximately 146 noise-sensitive receptors within the following subdivisions: Northern Lights, Sun Villa Estates, Whittel Pointe, Scenic Terrace, Willow Creek, Tierra Del Sol, and Springwood. These 146 impacts include the following receptors: Hillside Foursquare Church of Reno, individual receptors adjacent to US 395, Sun Valley Boulevard, and Pyramid Highway, Spanish Springs Library, and Northern Nevada Teen Challenge. Traffic noise levels range from 55 dBA to 78 dBA along the project corridors.

The following summarizes impacts from the build alternatives where elements would differ. Figure 3-32, Figure 3-33, Figure 3-34, and Figure 3-35 show detailed impacts and potential property acquisitions as a result of the different build alternatives.

Alternative 1 Impacts

Alternative 1 would result in approximately 173 potential property acquisitions within the following subdivisions: Mobile Glen, Ross Park Estates, High Country, Sun Valley, Spring Ridge, Oasis Mobile Estates, Blue Gem Estates, and Spring Creek. In addition, single family homes along Sun Valley Boulevard and the Kid City Daycare would be acquired. Therefore, traffic noise levels at these properties were not modeled.

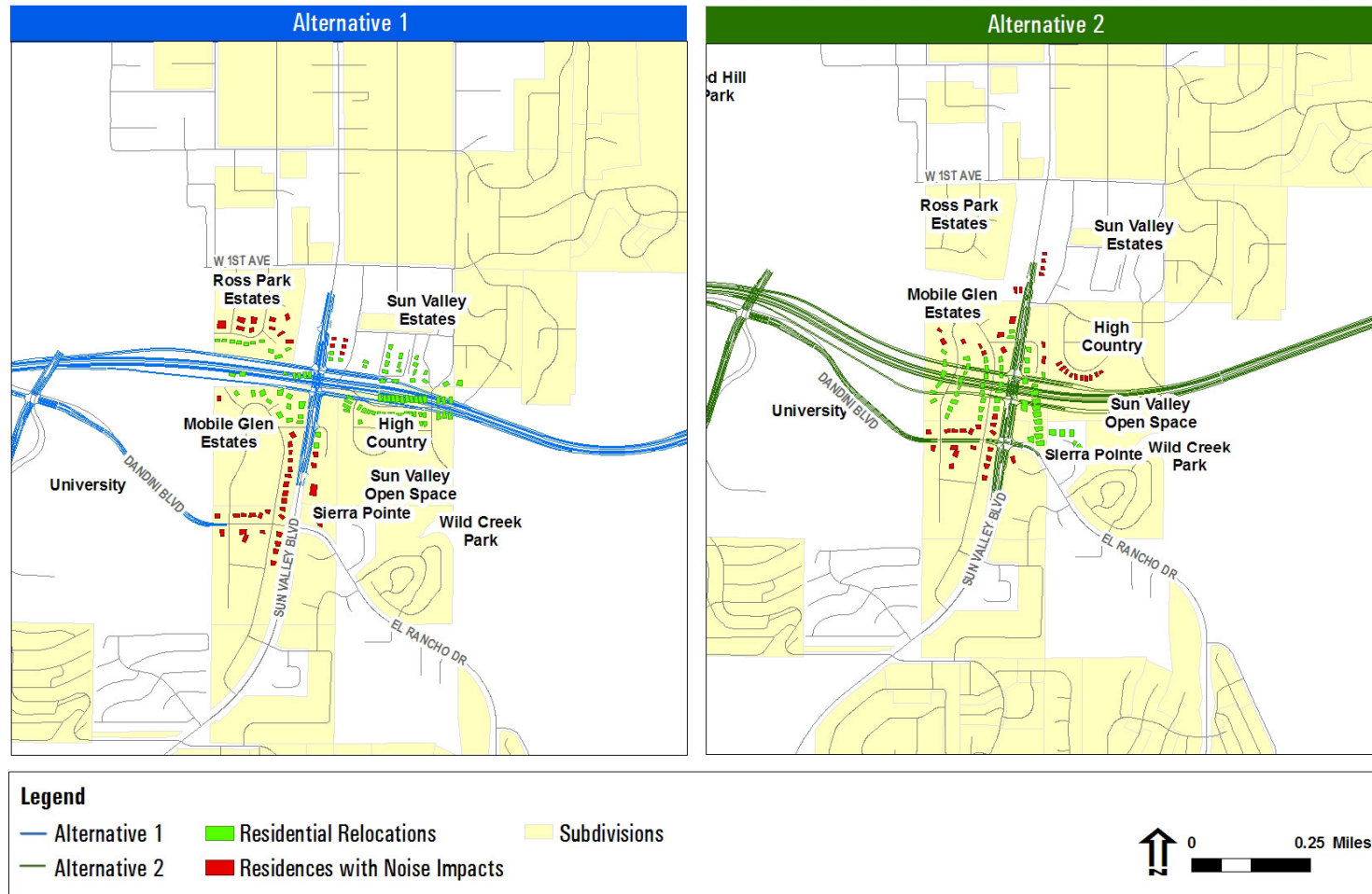
Alternative 1 would result in traffic noise levels that would meet or exceed the NAC of 66 dBA at approximately 54 noise-sensitive receptors within the following subdivisions: Mobile Glen, Ross Park Estates, Sierra Point, Spring Ridge, and Blue Gem Estates. Of the 54 noise-sensitive receptor impacts, individual receptors located adjacent to Sun Valley Boulevard are also impacted as a result of Alternative 1. Traffic noise levels range from 54 dBA to 72 dBA along the project corridors. There are substantial increases in traffic noise levels over existing conditions within the Mobile Glen subdivision.

Alternative 2 Impacts

Alternative 2 would result in approximately 172 potential property acquisitions within the following subdivisions: Mobile Glen, Sierra Point, Spring Ridge, Oasis Mobile Estates, Blue Gem Estates, and Spring Creek. Alternative 2 would require potential acquisition of property in Sun Valley designed for open space. Traffic noise levels at these properties were not modeled.

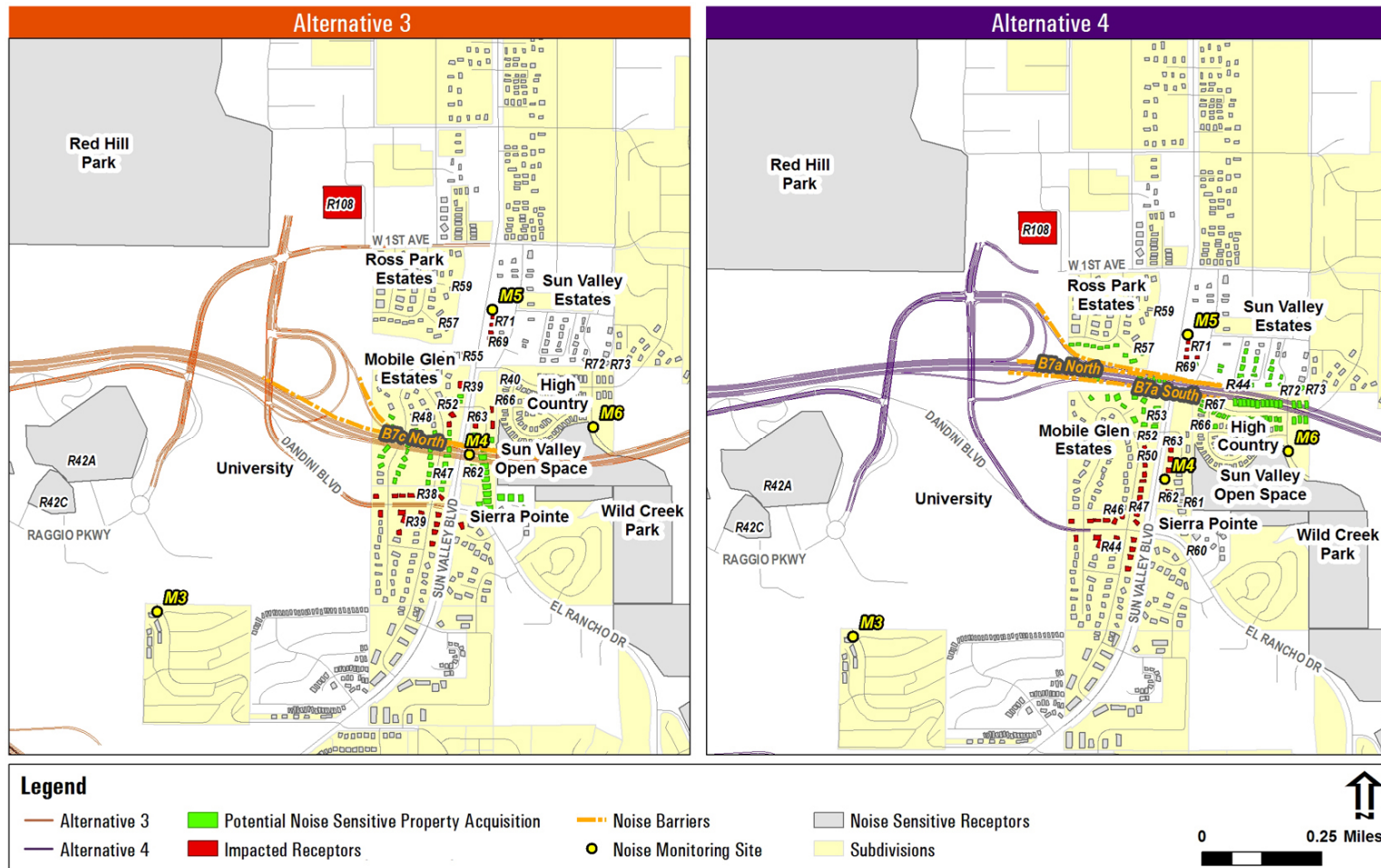


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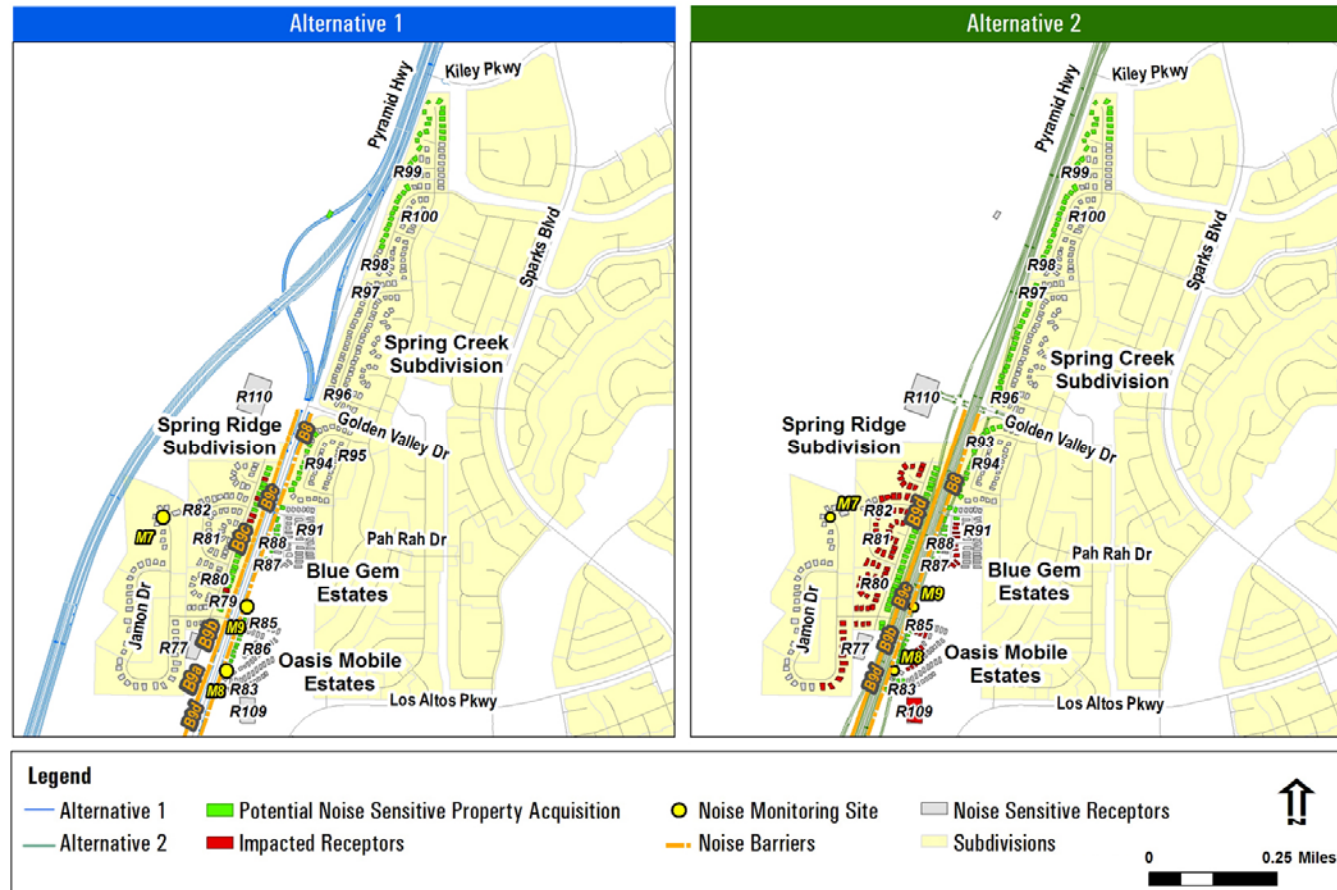
1



Note: "Potential Noise Sensitive Property Acquisition" refers to noise sensitive properties that would be acquired because of right-of-way required to construct proposed improvements, and, therefore, were not evaluated for noise impacts.

Figure 3-33. Traffic Noise Impacts near the US 395 Connector

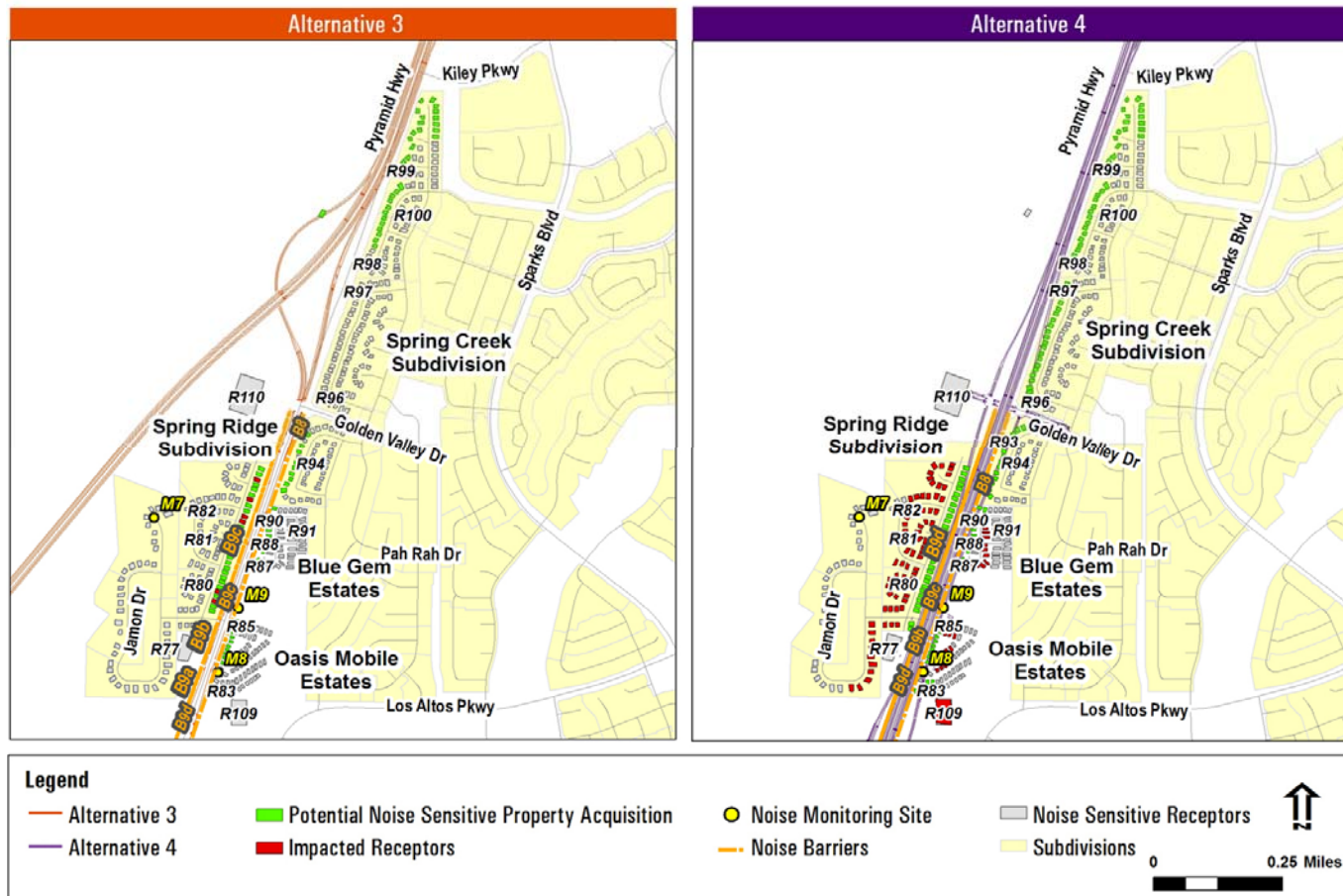
2



Notes: "Potential Noise Sensitive Property Acquisition" refers to noise sensitive properties that would be acquired because of right-of-way required to construct proposed improvements, and, therefore, were not evaluated for noise impacts.

Figure 3-34. Traffic Noise Impacts Along Pyramid Highway

1



Note: "Potential Noise Sensitive Property Acquisition" refers to noise sensitive properties that would be acquired because of right-of-way required to construct proposed improvements, and, therefore, were not evaluated for noise impacts.

Figure 3-35. Traffic Noise Impacts Along Pyramid Highway

2



Alternative 2 would result in traffic noise levels that would meet or exceed the NAC of 66 dBA at approximately 139 noise-sensitive receptors within the following subdivisions: Mobile Glen, High Country, Spring Ridge, Oasis Mobile Estates, and Blue Gem Estates. Of the 139 noise-sensitive receptor impacts, the following receptors would also be impacted as a result of Alternative 2: individual receptors located adjacent to Sun Valley Boulevard and Pyramid Highway, Kid City Daycare, Renown Health Urgent Care, and Summit Christian School. Traffic noise levels range from 54 dBA to 72 dBA along the project corridors.

Alternative 3 Impacts

Alternative 3 would result in approximately 114 potential property acquisitions within the following subdivisions: Mobile Glen, Sierra Point, Spring Ridge, Oasis Mobile Estates, Blue Gem Estates, and Spring Creek. In addition, Alternative 3 would require potential acquisition of property in Sun Valley designed for open space. Therefore, traffic noise levels at these properties were not modeled.

Alternative 3 would result in traffic noise levels that would meet or exceed the NAC of 66 dBA at approximately 43 noise-sensitive receptors within the following subdivisions: Mobile Glen, Spring Ridge, and Blue Gem Estates. Of the 43 noise-sensitive receptor impacts, the following receptors would also be impacted as a result of Alternative 3: Kid City Daycare, individual receptors adjacent to Sun Valley Boulevard, and Lois Allen Elementary School. Traffic noise levels range from 53 dBA to 71 dBA along the project corridors.

Alternative 4 Impacts

Alternative 4 would result in approximately 218 potential property acquisitions within the following subdivisions: Mobile Glen, Ross Park Estates, High Country, Sun Valley, Spring Ridge, Oasis Mobile Estates, Blue Gem Estates, and Spring Creek. In addition, individual single family homes along Sun Valley Boulevard and the Kid City Daycare would be acquired as a result of Alternative 1. Therefore, traffic noise levels at these properties were not modeled.

Alternative 4 would result in traffic noise levels that would meet or exceed the NAC of 66 dBA at approximately 134 noise-sensitive receptors within the following subdivisions: Mobile Glen, Ross Park, Sierra Point, Spring Ridge, Oasis Mobile Estates, and Blue Gem Estates. Of the 134 noise-sensitive receptor impacts, the following receptors would also be impacted as a result of Alternative 4: individual receptors adjacent to Sun Valley Boulevard and Pyramid Highway, Lois Allen Elementary School, Renown Health Urgent Care, and Summit Christian School. Traffic noise levels range from 53 dBA to 72 dBA along the project corridors.

Traffic Noise Impacts Summary

Table 3-27 summarizes the traffic noise impacts identified for the No-Action Alternative and each of the build alternatives.

Traffic noise impacts would be similar for the No-Action Alternative and Alternatives 1 and 3. Alternatives 2 and 4 would have much higher traffic noise impacts compared to Alternatives 1 and 3 since the roadway alignment along portions of Pyramid Highway between Disc Drive and Sparks Boulevard would be constructed closer to residences. In Sun Valley, the southern alignment over Sun Valley Boulevard included with Alternatives 2 and 3 would result in higher traffic noise impacts than Alternatives 1 and 4.

Table 3-27. Summary of Impacted Receptors by Alternative

	No-Action	Common to all Build Alternatives	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Number of Receptors Impacted by Traffic Noise	205	146	54	139	43	134
Total			200	285	189	280

Construction

Construction will generate noise from diesel-powered earth-moving equipment, such as dump trucks and bulldozers, back-up alarms on certain equipment, compressors, and pile drivers activities. Construction noises at receptors located near construction areas will depend on the loudest piece of equipment operating at the moment. According to the *FHWA Construction Noise Handbook* (FHWA, August 2006), noise levels from diesel-powered equipment range from 80 to 95 dBA at a distance of 50 feet, which exceeds the noise thresholds defined above. Impact equipment, such as pile drivers, can generate louder noise levels.

3.9.7 Traffic Noise Mitigation

3.9.7.1 Traffic Noise Abatement Measures

The Study team evaluated impacted areas for traffic noise abatement according to NDOT Traffic and Construction Noise Abatement Policy, 2011. This involves evaluating abatement measures for acoustical feasibility, engineering feasibility, and reasonableness for each receptor location. The Barrier Analysis discussion below provides feasible and reasonable criteria. The location of traffic noise barriers evaluated and those recommended for mitigation are shown in Figure 3-30 through Figure 3-35.



Four traffic noise abatement measures were considered for the build alternatives:

1. **Alteration of the vertical or horizontal roadway alignment.** Businesses and residents would lose direct access along portions of Sun Valley Boulevard and Pyramid Highway by alteration of the vertical roadway alignment. It would be costly to suppress the roadway in an effort to try and avoid noise impacts. Further, alteration of the horizontal alignment along any of the project corridors would result in additional right-of-way.
2. **Traffic noise buffers by acquisition of undeveloped land.** Sun Valley Boulevard is in an urban setting with little undeveloped land. Pyramid Highway and US 395 have both urban and rural settings with pockets of undeveloped lands. However, the majority of the existing noise-sensitive receptors are currently adjacent to the project corridors. Therefore, acquiring undeveloped land for buffer zones would not be reasonable and feasible to engineer because they would have to be placed in between the roadway and the noise-sensitive receptor to achieve a substantial traffic noise reduction.
3. **Traffic management.** US 395 is classified as a regional highway. Therefore, restricting truck traffic is not feasible to implement. Pyramid Highway and Sun Valley Boulevard are classified as arterial roadways. The percentage of trucks that use these roadways is less than 5 percent. In addition, there are signalized intersections along Pyramid Highway and Sun Valley Boulevard that help to reduce the speed of traffic. Therefore, additional traffic management devices would not be beneficial at reducing noise levels.
4. **Traffic noise barriers.** Traffic noise barriers are the most common form of noise abatement because they usually provide a greater noise reduction and are generally more feasible to implement than other measures. Therefore, traffic noise barriers were considered for all impacted receptors in the Study Area. Only concrete traffic noise barriers were considered for this analysis because this type of material is generally most effective at reducing noise. There are other forms of barriers such as vegetative barriers and earthen berms. However, vegetative barriers are not as effective at reducing noise compared to concrete barriers because wide, dense vegetation would be required, which does not exist in the study area's high desert environment. Refer to the *Pyramid Highway and US 395 Connection Traffic Noise Technical Report* (RTC, 2012) for information on other barrier types.

3.9.7.2 Barrier Analysis

According to referenced guidelines, the "feasibility and reasonableness" of considered mitigation needs to be evaluated for all locations that are projected to satisfy defined criteria. The analysis of the acoustical feasibility of mitigation considers the effectiveness of a traffic noise barrier to achieve at least a 5-dBA noise reduction for at least 75 percent of the first row impacted residents in predicted future traffic noise

levels. The analysis for engineering feasibility considers construction, engineering, maintenance, and other design issues. Abatement cannot create any safety or unacceptable maintenance problems or engineering fatal flaws. Factors reviewed could include site topography, access to businesses and residences, roadway compatibility and drainage impacts, utility conflicts and relocation requirements, maintenance considerations, aesthetics, and potential for additional enhancements to private property. For any barriers selected for final design, such design should be performed to achieve the acoustical benefit predicted in this assessment and in accordance with the NDOT Structure Division's Structures Manual (NDOT, 2008). The reasonableness of considered mitigation is evaluated through its cost-effectiveness, the points-of-view of benefited property owners and residents if they are opposed to the proposed mitigation, and the noise reduction design goal.

The mitigation analysis identified nine areas where traffic noise barriers could meet these criteria. The following summarizes the mitigation analysis for each impacted area.

3.9.7.3 *Mitigation for All Build Alternatives*

Impacted areas located in areas where the build alternatives do not differ include North Lights Subdivision, Sun Villa Estates, Hillside Foursquare Church of Reno, Whittell Pointe Apartments, individual receptors adjacent to US 395, Scenic Terrace Subdivision, Willow Creek Subdivision, Spanish Springs Library, Northern Nevada Teen Challenge, Tierra Del Sol Subdivision, individual receptors adjacent to Pyramid Highway, and Springwood Subdivision.

Final analyses and proposed traffic noise abatement will be contingent on the preferred alternative identified, revisions to input parameters, further refinement of conditions, and complying with regulatory and policy requirements.

Traffic noise barriers were not modeled for the residents in the North Lights Subdivision east of US 395 and the residents in Scenic Terrace Subdivision because of the surrounding topography (steep slopes) and because the receptors are located at a higher elevation than the roadway. Traffic noise barriers were also not modeled for the individual receptors because gaps in the barriers would be required at access points (driveways), rendering them ineffective. Further, placing walls close to access points would result in inadequate sight distance, which would be a safety concern.

Traffic noise barriers were considered for the residents in the North Lights Subdivision, Sun Villa Estates, Tierra Del Sol Subdivision, Spanish Springs Library, and Springwood Subdivision. However, Noise Barriers 1, 2, 5, and 7a exceed NDOT's cost reasonable criteria threshold of \$40,000 per benefitted receptor and, therefore, were not recommended.

During final design, further analysis will be conducted to consider site specific conditions and evaluate interior noise levels per policy for the Hillside Foursquare



Church of Reno, Spanish Springs Library, Northern Nevada Teen Challenge, and the Renown Health Urgent Care.

Traffic noise barriers were modeled at 12 feet to 14 feet tall along the US 395 roadway shoulder adjacent to the Whittel Pointe Apartments, the right-of-way line adjacent to the Willow Creek Subdivision, and the Pyramid Highway roadway shoulder adjacent to individual receptors and the Springwood Subdivision. All of the traffic noise barriers in the areas mentioned above meet the 5 dBA acoustically feasible noise reduction criteria for at least 75 percent of the first row impacts receptors. Table 3-28 summarizes the traffic noise barrier analysis for these barriers.

Table 3-28. Summary of Traffic Noise Barrier Analysis for All Build Alternatives

Traffic Noise Barrier No.	Length of Barrier (feet)	Height of Barrier (feet)	Total Cost of Barrier	Total # of Impacted Receptors (First Row)	Total # of benefited Receptors (First Row*)	Percentage of First Row Impacted and Benefited Receptors†	Cost per Benefited Receptor
Whittel Pointe Apartments							
3	1,500	14	\$798,000	5 buildings (40 units)	4 buildings 32	80%	\$24,938
Willow Creek Subdivision							
4	1,500	12	\$684,000	5 (5)	20 (5)	100%	\$34,200
Individual Receptors and Springwood Subdivision							
6a	1,500	12	\$684,000	12 (7)	38 (8)	78%	\$32,400
6b	1,200	12	\$547,200				
Total	2,700	12	\$1,231,200				

* Number in parenthesis represents number of benefited first row receptors that are also impacted.

† A noise barrier must benefit at least 75% of the impacted first row receptors.

As shown in Table 3-28, the cost per benefited receptor, for all traffic noise barriers, either meets or is below NDOT's cost reasonableness criteria threshold of \$40,000. Therefore, Traffic Noise Barriers 3, 4, 6a, and 6b are recommended to mitigate for traffic noise impacts for the Whittel Pointe Apartments, Willow Creek Subdivision, and the individual residences and Springwood Subdivision.

3.9.7.4 Mitigation Specific to Build Alternatives

Impacted areas located in areas where the build alternatives differ include Mobile Glen Subdivision, Ross Park Estates, Kid City Daycare, High Country Subdivision, Sierra Point Apartments, individual receptors adjacent to Sun Valley Boulevard, Lois Allen Elementary School, Renown Health Urgent Care, Spring Ridge, Oasis Mobile Estates, Blue Gem Estates, Summit Christian School, and individual receptors adjacent to Pyramid Highway.

Traffic noise barriers were considered for the impacted receptors adjacent to the US 395 Connector. However, the barriers did not meet the feasible and reasonable criteria and, therefore, were not recommended.

During final design, further analysis will be conducted to consider site-specific conditions and evaluate interior noise levels per policy for the Renown Health Urgent Care.

The following summarizes the traffic noise barrier analyses for the Oasis Mobile Estates, Blue Gem Estates, Spring Ridge Subdivision, and Summit Christian School.

Traffic noise barriers were modeled along the Pyramid Highway roadway shoulder adjacent to Oasis Mobile Estates, Blue Gem Estates, Spring Ridge Subdivision, and Summit Christian School. All of the traffic noise barriers in the areas mentioned above meet the 5 dBA acoustically feasible noise reduction criteria for at least 75 percent of the first row impacted receptors. Table 3-29 summarizes the traffic noise barrier analysis for these barriers.

Table 3-29. Summary of Traffic Noise Barrier Analysis for Each Build Alternative

Traffic Noise Barrier No.	Length of Barrier (feet)	Height of Barrier (feet)	Total Cost of Barrier	Total # of Impacted Receptors (First Row)	Total # of benefited Receptors (First Row*)	Percentage of First Row Impacted and Benefited Receptors†	Cost per Benefited Receptor
Alternatives 2 and 4							
<i>Oasis Mobile Estates and Blue Gem Estates</i>							
8	3,700	12	\$1,687,200	26 (16)	55 (17)	100%+	\$30,676
<i>Spring Ridge and Summit Christian School</i>							
9d	4,260	8	\$1,295,040	70 (24)	40 (24)	100%	\$32,376

* Number in parenthesis represents number of benefited first row receptors that are also impacted.

† A noise barrier must benefit at least 75% of the impacted first row receptors.

As shown in Table 3-29, Traffic Noise Barrier 8 would have a cost per benefited receptor below NDOT's cost reasonableness criteria threshold of \$40,000. Therefore, for Alternatives 2 and 4, a 12-foot-tall traffic noise barrier (Barrier 8) is recommended to mitigate for traffic noise impacts to the Oasis Mobile Estates and Blue Gem Estates. In addition, Traffic Noise Barrier 9d (for Alternatives 2 and 4 only) meets NDOT's cost reasonableness criteria with a 12-foot-tall wall.

3.9.7.5 Construction

During construction, RTC and/or NDOT may implement the following measures to aid in mitigating temporary noise impacts:



- Limit construction activities to workday off-peak hours as best possible.
- Use noise blankets or other muffling devices on equipment and quiet-use generators at noise-sensitive receptors.
- Use well-maintained equipment and have equipment inspected regularly.
- Locate stationary sources as far from sensitive receptors as practicable.

3.9.7.6 Conclusions

At this time, the evaluated Traffic Noise Barriers 3, 4, 6a and 6b meet the acoustically feasible criteria and two out of three reasonableness criteria for the impacted receptors in the Whittell Pointe Apartments, Willow Creek Subdivision, and Springwood Subdivision. In addition, the Traffic Noise Barriers 8 and 9d meet the acoustically feasible criteria and two out of three reasonableness criteria for the impacted receptors in the Oasis Mobile Estates, Blue Gem MHC, and Spring Ridge Subdivision for Alternatives 2 and 4.

Final analyses and proposed traffic noise abatement will be contingent on the preferred alternative, revisions to input parameters, further refinement of conditions, and complying with regulatory and policy requirements. During the public involvement process, RTC and NDOT will solicit input from the benefited receptors regarding the proposed noise barriers.

3.10 WATER RESOURCES AND WATER QUALITY

This section describes water resources located in the Study Area, including both surface water and groundwater, with a discussion of water quality, water supply, and stormwater management.

3.10.1 Methods

The Study team identified existing conditions and potential impacts to water resources and water quality using a watershed-based approach consistent with guidance developed by the EPA.

Data sources and applicable statutes for the analysis of water resources and water quality included the following:

- U.S. Environmental Protection Agency
- U.S. Geological Survey
- Washoe County Department of Water Resources
- Truckee Meadows Water Authority

- Truckee Meadows Regional Stormwater Quality Management Program
- Nevada Division of Water Planning
- Clean Water Act
- Safe Drinking Water Act
- Nevada Administrative Code

The Study team assessed impacts to natural streams by identifying areas within the channels that would be affected by bridge construction, culvert extension or other conveyance modifications, encroachment on existing floodplains, and overall increases in highway runoff.

Water quality mitigation was assessed conservatively. This conservative approach examines the impacts for the largest probable construction footprint, thereby reducing the likelihood of re-evaluation as a result of ongoing water quality evaluations and project stakeholder coordination. This approach shows the greatest impact, especially in regard to right-of-way and relocations; however this approach will reduce the likelihood of reevaluation as a result of evolving water quality requirements and coordination. Both water quantity and water quality basins, referred to as water quantity/quality basins in this Study, were used to provide water quality mitigation and flow attenuation throughout the Study Area. This approach resulted in 13 to 14 proposed water quantity/quality basins and increased the size of the construction footprint. The installation of such basins would result in additional right-of-way acquisition, affect both residential and commercial properties, and involve long-term maintenance commitments. RTC, NDOT, and local agencies and municipalities will coordinate during the Final EIS to determine appropriate water quality mitigation measures and locations.

3.10.2 Existing Conditions

3.10.2.1 Surface Water

The Study Area lies within the 1190-square-mile Truckee River Watershed (Hydrologic Unit Code [HUC] 16050102). The watershed encompasses parts of Washoe County and the Truckee Meadows, including the cities of Reno and Sparks. The watershed is part of the larger Truckee River Basin and is influenced mainly by the Truckee River, which flows from Lake Tahoe northeast to Pyramid Lake. Most of the water that flows into the Truckee River in Nevada is generated on the eastern slopes of the Carson Range. Locally, the Study Area is located in three sub-basins. Surface runoff drains to the Truckee River, with water flowing through the Virginia Street Dam, Sun Valley Dam, or the North Truckee Drain. The Truckee River is located approximately 1.5 miles south of the Study Area.



Surface waters within the Study Area are limited to agricultural ditches and unnamed intermittent drainages that primarily convey stormwater runoff during and immediately after storm events. The two primary water conveyances in the Study Area are the Orr Ditch and the North Truckee Drain.

The Orr Ditch was constructed in the late 1800s to provide irrigation water to Truckee Meadows and the Spanish Springs area. The ditch begins approximately 5.5 miles southwest of the Study Area at a diversion along the Truckee River, west of the South McCarran Boulevard Bridge. Current uses include municipal and industrial users, and major water rights owners include the City of Reno, the City of Sparks, the Truckee Meadows Water Authority and the Pyramid Lake Paiute Tribe (TMWA [A], 2009). The ditch begins southwest of the Study Area at a diversion along the Truckee River. The ditch flows approximately northeast and terminates in the Spanish Springs Valley. Return flows from the ditch return to the Truckee River via the North Truckee Drain Ditch (TMWA, 2008).

The North Truckee Drain Ditch was constructed in the early 1900s to provide irrigation water to north Reno, Sparks, and Spanish Springs. The ditch collects domestic runoff, spring water and tail water from the Orr Ditch, and flows south through the Study Area, emptying into the Truckee River.

There are no named lakes or reservoirs in the Study Area, nor wild and scenic rivers.

Surface Water Quality Standards

The Nevada Division of Environmental Protection (NDEP) retains statutory authority for water quality through its Bureau of Water Quality Planning (BWQP). The BWQP performs a variety of functions pertaining to surface waters, which include the assignment of antidegradation requirements to the beneficial uses of surface waters throughout Nevada and the subsequent development of water quality standards to protect these uses.

The antidegradation requirements are addressed through the establishment of “requirements to maintain existing higher quality,” or RMHQs. RMHQs are established when the existing parameters exceed the criteria established to protect the beneficial uses. Application of the antidegradation measures to water quality standards helps to develop management strategies through permitting programs.

There have been no beneficial uses or RMHQs assigned yet to any surface waters in the Study Area. As noted in the Nevada Administrative Code (NAC) 445A.120, “the quality of any waters receiving waste discharges must be such that no impairment of the beneficial usage of water occurs as the result of the discharge. Natural water conditions may, on occasion, be outside the limits established by standards.” The Truckee River, in the stretch of river between the Idlewild Drive Bridge and the McCarran Boulevard

Bridge (east), receives drainage from the Study Area and has the following assigned beneficial uses:

- Irrigation
- Watering of livestock
- Recreation involving contact with water
- Recreation not involving contact with water
- Industrial supply
- Municipal or domestic supply, or both
- Propagation of wildlife
- Propagation of aquatic life

The Clean Water Act requires states to publish an annual list of water bodies that are not meeting their beneficial uses because of excess pollutants. These pollutants can occur naturally or be a result of human activity. The list of impaired waters, known as the Section 303(d) List, is based on violations of water quality standards; it is organized by watersheds and further divided into stream segments. Also, in Nevada, a waterbody is included on the Section 303(d) List if:

- A fishing, drinking, or swimming advisory had been in effect for the water body during the listing period.
- The waterbody was listed on a prior Section 303(d) List and there is insufficient information to delist the water body.

The NDEP Water Quality Standards Branch is responsible for assigning the Total Maximum Daily Loads (TMDL), which is the maximum amount of a pollutant that a body of water can receive while still meeting water quality standards, to these impaired waters, which accelerates their cleanup.

There are no Study Area surface waters on the Section 303(d) List. The Truckee River, in the stretch of river between the Idlewood Drive Bridge and the McCarran Boulevard Bridge (east), receives drainage from the Study Area. It has the following Section 303(d)-listed impairments:

- Temperature
- Total suspended solids

Elevated water temperatures can impact cold water aquatic species and the levels of available oxygen for both aquatic plants and animals. High levels of total suspended solids can decrease the efficacy of water treatment and cloud the water. This can impact aquatic vegetation, alter streambed morphology, and increase overall concentrations of



metals, pesticides, bacteria and nutrients because these can attach themselves to sediment on dry land and then be washed into waterways.

In the Study Area there are two active municipal separate storm sewer systems (MS4) permits. These permits allow the discharge of municipal stormwater runoff to waters of the U.S. One permit is the statewide permit held by NDOT; the other is a joint permit held by the City of Reno, the City of Sparks, and Washoe County. These permits require the development and implementation of a stormwater management program to reduce the discharge of pollutants to the maximum extent practicable.

Surface Water Treatment

The Truckee Meadows Water Authority owns and operates two water treatment facilities in the Reno area—the Chalk Bluff Water Treatment Facility and the Glendale Water Treatment Facility. Both of these facilities are located upstream on the Truckee River, and outside of the Study Area.

Wastewater Treatment

The Truckee Meadows Water Reclamation Facility (TMWRF), located approximately three miles south of the Study Area, treats most of the domestic sewage generated within the Study Area.

The Spanish Spring area, located in the northern portion of the Study Area, was originally developed with each lot using an individual sewage disposal system (either a septic tank or leach field). In 1995, nitrates attributed to septic tanks were detected in the public well system. In 2002, the *Spanish Spring Valley Nitrate Facility Plan* was created and called for the connection of approximately 2,000 homes to the community sewer system, with waste conveyed to the TMWRF (Washoe County, 2002). This phased project has begun, and as of fall 2009, approximately 200 residences had been connected to the community sewer system. Those residences determined to be non-contributing to the nitrate deposition in public wells will continue to use their existing septic tanks. New development, contingent upon density, is required to have sewer connections (NDEP, 2010).

3.10.2.2 Groundwater Resources

The Study Area is within a greater geological formation known as the Great Basin, and regionally within the Basin and Range Basement. Locally, the Study Area is within three hydrographic basins: Sun Valley, Spanish Springs, and Truckee Meadows. These hydrographic basins were formed by tectonic forces of the Sierra Nevada Batholith Basin and Range extensional faulting.

Precipitation in the form of snow run-off is the primary source of recharge for the aquifers in the Study Area. Irrigation canals and ditches influence groundwater within and in the vicinity of the Study Area. These unlined canals and ditches, which are used

to irrigate and drain land, have a seasonal influence on groundwater levels and act as a local source of recharge to the aquifer.

Groundwater provides approximately 15 percent of the TMWA water supply. The TWMA operates 32 production wells, which supplement surface water supplies during periods of peak use in the summer and aid in the recharge of treated water in the winter (TMWA [B], 2009). Many of the production wells also serve as recharge sites, where treated surface water is actively injected into the groundwater aquifer for storage and future use. There are no TWMA production wells in the Study Area.

In the northern portion of the Study Area, there are two public water systems that obtain drinking water from groundwater resources—the Desert Springs Public Water System and Spring Creek Public Water System. These public water systems operate the six wells along the Pyramid Highway corridor that are listed in Table 3-30 and shown in Figure 3-36.

Table 3-30. Public Wells

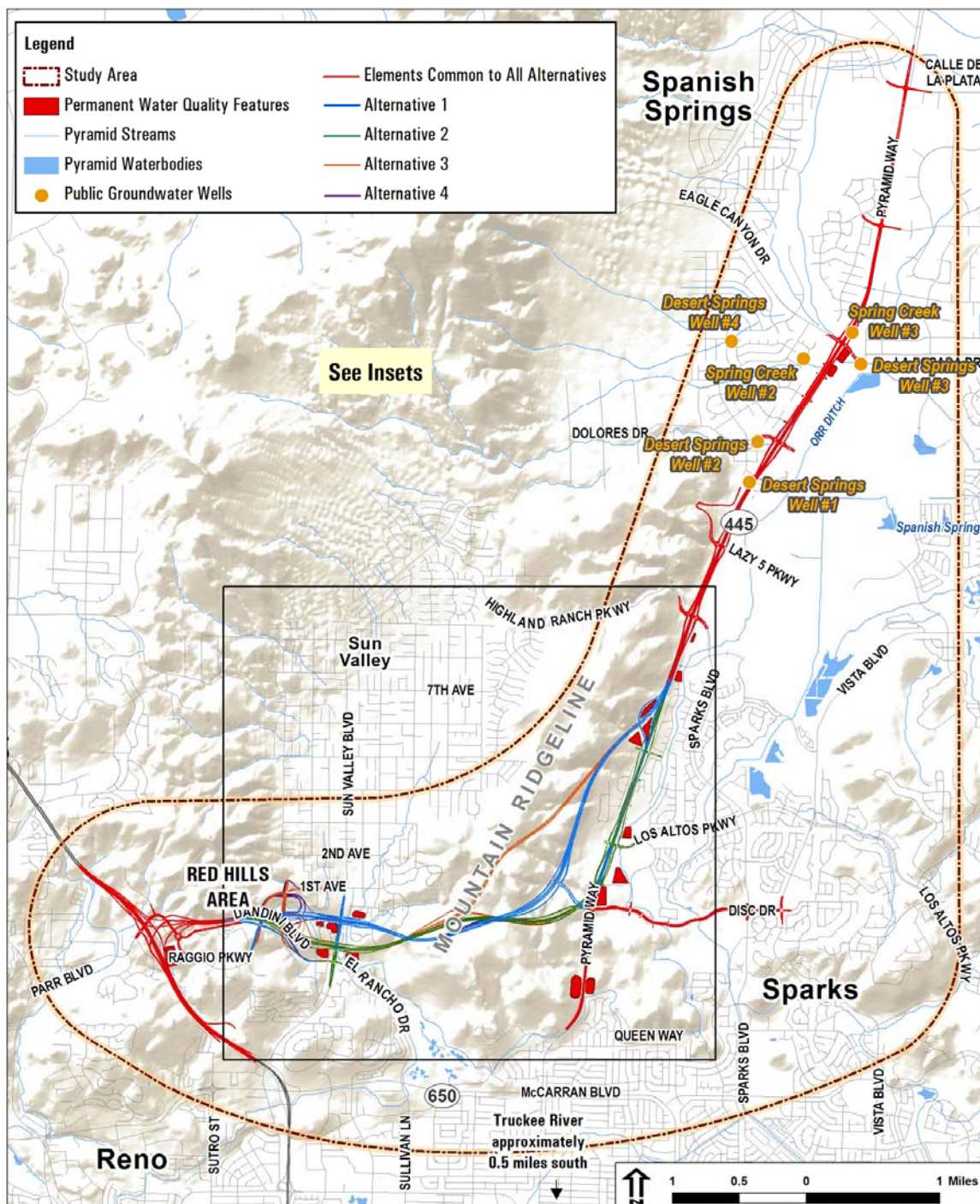
Well Name	Active/Inactive
Desert Spring Well #1	Active
Desert Spring Well #2	Active
Desert Spring Well #3	Inactive, but reserved for future use
Desert Spring Well #4	Active
Spring Creek Well #2	Active
Spring Creek Well #3	Inactive due to contamination

All of the Desert Springs wells have Well Head Protection Plans in place, meant to protect the underground aquifers from contamination.

3.10.3 Water Resources and Water Quality Impacts

Impacts to water resources would result primarily from an increase in impervious surface and both short-term and long-term erosion risk. Existing water resources and proposed permanent water quantity/quality basins are shown in Figure 3-36, Figure 3-37, and Figure 3-38.

Increased impervious surface would result from roadway and Park and Ride construction. Stormwater runoff is generated from impervious areas, such as paved streets, parking lots, driveways, and building rooftops, and pervious areas such as natural open space and landscaping during precipitation events. Stormwater runoff often contains sediment and/ or pollutants in quantities that could adversely affect water quality. Types and concentration of pollutants in roadway runoff are highly variable and can be affected by such factors as traffic volumes, climate, maintenance practices, urbanization, vegetation and soil type on the right-of-way, and institutional characteristics, such as litter laws, automobile emissions, and other factors. A direct effect of sediments into receiving waters is the increase in turbidity and the concentration of suspended solids.



Note: Insets are shown on Figure 3-37 and Figure 3-38.

Figure 3-36. Water Resources and Permanent Water Quality Features

1

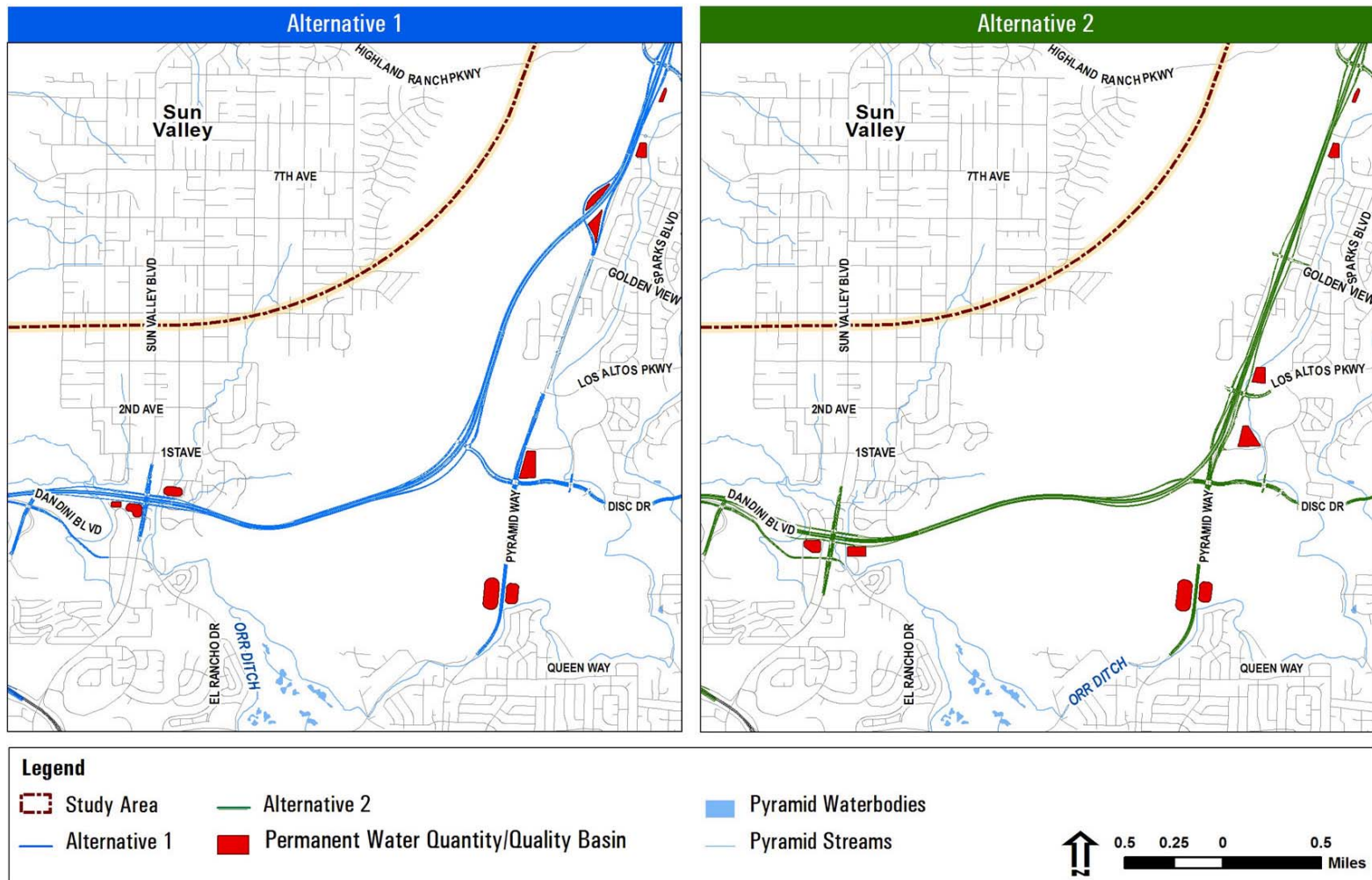


Figure 3-37. Water Resources and Permanent Water Quality – Alternatives 1 and 2

2



1

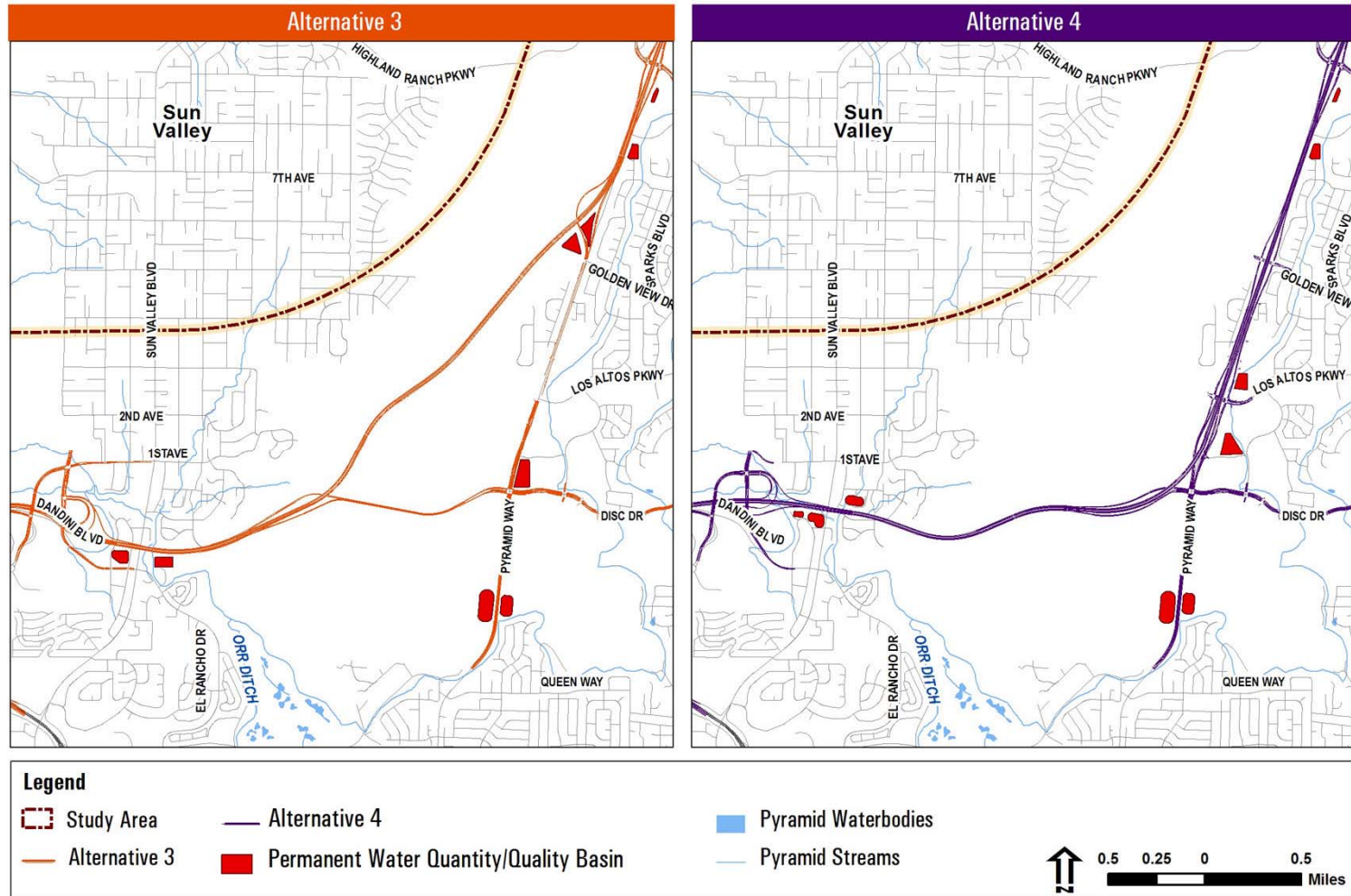


Figure 3-38. Water Resources and Permanent Water Quality – Alternatives 3 and 4

2

Increased impervious surface would also increase peak stormwater flows, potentially increasing erosion. This would promote the degradation of stream channels and increase flooding potential. The intensity of storm events in the Reno area can exaggerate these peaks and complicate attempts to effectively manage stormwater flows.

The short-term erosion risk would result from ground-disturbing activities during and immediately after construction. The more ground-disturbing activity required by an alternative, the greater the potential for water quality impacts. In addition, the steeper the terrain or the larger the precipitation catchment area above where construction occurs, the greater the challenge of eliminating water quality impacts.

Long-term risks result from a failure to stabilize slopes, typically through revegetation, which leads to ongoing erosion and sedimentation impacts. Alternatives that cross steep slopes and/or have poor soil conditions that would hinder revegetation and stabilization would have the greatest long-term erosion risk.

Indirect impacts to water quality would result from growth and development continuing throughout the Study Area, thereby increasing the impervious surface area.

3.10.3.1 No-Action Alternative

The No-Action Alternative would have few additional direct impacts to water quality in the Study Area. These impacts would include natural erosion and runoff of contaminants from the existing roadway, exacerbated by a forecasted increase in traffic in the design year (2035).

3.10.3.2 Build Alternatives

Impacts Common to All Build Alternatives

In those areas where proposed transportation improvements are the same, each build alternative would add 231 acres of impervious surface. Stormwater runoff from the build alternatives would be collected and conveyed to various discharge points along the proposed alignment. Based on the capacity of the downstream conveyance channel and existing stormwater facilities, discharges from the new outfalls would be attenuated to control the downstream peak flow, mitigating the potential for downstream flooding and channel degradation that would result from the increased impervious surface. As determined by the governing stakeholders, and in accordance with their MS4 permits, permanent BMPs would be incorporated into the project design, if a build alternative is selected as the Preferred Alternative. Through the implementation of these mitigation measures, no degradation to the surface water quality or beneficial uses of the Truckee River is anticipated. Section 3.10.4 *Water Resources and Water Quality Mitigation* includes a list of BMPs that will be implemented.

The US 395 Connector would cross the Red Hills area immediately north of TMCC in the western portion of the Study Area. Here, it would traverse steep slopes which, when



combined with the poor soils in this area, could result in long-term erosion and sedimentation impacts because revegetating these slopes could prove difficult. Also, historic mining occurred in the Red Hills area and on BLM land located to the east. This previous mining activity presents the potential for acid rock drainage in stormwater. 3.10.4 *Water Resources and Water Quality Mitigation* includes measures to address these issues.

The following three public groundwater wells are located either near or in the build alternatives:

- Desert Springs Well #2, located adjacent to Pyramid Highway, would require grading on the eastern edge of the parcel because a fill slope would be required for the roadway widening. The build alternatives would not disrupt use of the well or access to this site.
- Spring Creek Well #2, located at the northeast corner of a proposed park on La Posada Drive, would not be directly impacted. Indirect impacts include an increase in impervious surface of the capture zone for this well, which lowers the amount of groundwater recharge. This could be offset through the use of a retention basin.
- Spring Creek Well #3, located between Pyramid Highway and a proposed on ramp. The location of this facility would decrease motorist safety because of the proximity of existing pumping infrastructure to the roadway edge and access needs of maintenance vehicles. This well would require relocation to a location determined in coordination with TMWA, NDEP, and Washoe County Department of Water Resources.

Each build alternative would increase the amount of impervious surface near the wells. Without mitigation, this would increase the potential for nonpoint source pollution to enter well water via stormwater runoff.

The increased impervious surface associated with each build alternative would increase the stormwater runoff volume and peak flow rates within the study area. The increased runoff would require stormwater detention facilities to attenuate the release of project flows to existing downstream facilities. Flow attenuation would be required to mitigate potential flooding and channel degradation and to mitigate impacts to the Sun Valley Dam.

To accommodate the increased footprint of the build alternatives, existing drainage facilities, such as the Sun Valley Diversion Channel, culverts, and various drainage ditches, would require relocation or reconfiguration. Existing drainage facility impacts and the hydrology within the project area are discussed in the *Pyramid Highway & US 395 Connector Project Conceptual Drainage Report* (RTC, 2011).

Alternative 1 Impacts

In addition to the 231 acres of new impervious surface common to all build alternatives, Alternative 1 would add approximately 164 acres of new impervious surface.

- Alternative 1 would have the second largest amount of ground-disturbing activity during construction. Also, this alternative traverses the side slope located west of Pyramid Highway before intersecting Pyramid Highway near Sparks Boulevard. Because stabilizing side slopes can prove difficult, this alternative's location could increase the potential of short-term water quality impacts relative to other alternatives.
- To preserve the historic drainage pattern, various cross culverts and ditches would be required along the new alignment. Specific impacts and required facilities for Alternative 1 are discussed in the *Pyramid Highway & US 395 Connector Project Conceptual Drainage Report* (RTC, 2011) and are presented as *Segment 1 – North Alignment* and *Segment 2 – Off Alignment*.

Alternative 2 Impacts

In addition to the 231 acres of new impervious surface common to all build alternatives, Alternative 2 would add approximately 160 acres of new impervious surface.

Alternatives 2 and 4 cross less undeveloped land than Alternative 1 and 3 and, therefore, would create less ground-disturbing activity and potential for short-term impacts during construction. However, because of the steep grades between Pyramid Highway and the US 395 Connector, Alternatives 2 and Alternative 4 would require large cut and fill slopes immediately west of Pyramid Highway.

Given that the steep grades and nature of the soils in this area make revegetation difficult, these alternatives have the greatest potential for long-term water quality impacts.

To accommodate the increased roadway footprint along Pyramid Highway, various culverts and drainage ditches would require relocation or reconfiguration. Notably, the Orr ditch would require reconfiguration as a result of the ramp locations at the Pyramid connection. To preserve the historic drainage pattern, various cross culverts and ditches would be required along the proposed alignment. Specific impacts and required facilities for Alternative 2 are discussed in the *Pyramid Highway & US 395 Connector Project Conceptual Drainage Report* (RTC, 2011) and are presented as *Segment 1 – South Alignment* and *Segment 2 – On Alignment*.

Alternative 3 Impacts

In addition to the 231 acres of new impervious surface common to all build alternatives, Alternative 3 would add approximately 162 acres of new impervious surface.



Alternative 3 would have the most ground-disturbing activity during construction because it would travel through the most undeveloped land.

To preserve the historic drainage pattern where the new roadway and Disc Drive connector cross the undisturbed hydrologic basin, various cross culverts and ditches would be required. Specific impacts and required facilities for Alternative 3 are discussed in the *Pyramid Highway & US 395 Connector Project Conceptual Drainage Report* (RTC, 2011) and are presented within the report as the *Segment 1 – South Alignment* and the *Segment 2 – Ridge Alignment*.

Alternative 4 Impacts

In addition to the 231 acres of new impervious surface common to all build alternatives, Alternative 4 would add approximately 161 acres of new impervious surface.

Alternatives 2 and 4 intersect Pyramid Highway sooner than Alternative 1 and 3. Therefore, there would be less ground-disturbing activity. However, as discussed above, Alternatives 2 and 4 would require the largest cut and fill slopes to make the transition from Pyramid Highway to the US 395 Connector.

To accommodate the increased roadway footprint along Pyramid Highway, various culverts and drainage ditches would require relocation or reconfiguration. Notably, the Orr ditch would require reconfiguration as a result of the ramp locations at the Pyramid connection. Additionally, to preserve the historic drainage pattern where the new roadway would be established, various cross culverts and ditches would be required along the alignment. Specific impacts and required facilities for Alternative 4 are discussed in the *Pyramid Highway & US 395 Connector Project Conceptual Drainage Report* (RTC, 2011) and are presented within the report as the *Segment 1 – North Alignment* and the *Segment 2 – On Alignment*.

Water Quality Impacts Summary

The information in Table 3-31 shows that there is little difference between build alternatives in the amount of increased impervious surface.

Table 3-31. New Impervious Surface by Build Alternative

	Common to All Build Alternatives	Alternative			
		Alt. 1	Alt. 2	Alt. 3	Alt. 4
New Impervious Surface (acres)	231	165	160	162	161
Total		395	391	393	392

Topography and ground disturbance are the next best indicators of potential water quality impacts. In this regard, each alternative has merits and limitations compared to other alternatives. For example, Alternative 3 has a large amount of ground-disturbing

activity, but its location along a ridgeline facilitates slope stabilization and stormwater management. Alternative 1 traverses a side slope, which complicates the ground-disturbing activities; however, it would have less overall ground disturbance compared to Alternative 3. Lastly, Alternatives 2 and 4 would have the largest cut and fill slopes, but the least amount of ground disturbance. Given these offsetting factors, making judgments on the alternatives' relative effect on water quality is difficult.

There are no differences between alternatives regarding indirect impacts.

3.10.4 Water Resources and Water Quality Mitigation

RTC and/or NDOT will implement a series of measures to avoid, minimize, and mitigate impacts to water resources and water quality from the build alternatives. Specifically, RTC and/or NDOT will:

- Implement BMPs during construction. As part of the development of BMPs for the project, NDOT's construction contractor must file a Notice of Intent with NDEP's Bureau of Water Pollution Control to obtain coverage under the General Permit for Stormwater Discharges Associated with Construction Activity (NVR100000). A Stormwater Pollution Prevention Plan (SWPPP) will be developed before the Notice of Intent is submitted. The SWPPP will outline temporary and permanent erosion and sediment controls, locate stormwater discharge points, and describe BMPs to be implemented to prevent or reduce stormwater pollutant discharge associated with construction activities to the maximum extent practical.
- Implement temporary erosion control and stormwater control measures during construction per the NDOT Storm Water Quality Manuals.
- Design post-construction BMPs per the requirements of the NDOT Storm Water Quality Manuals.
- Obtain a Section 401 Water Quality Certification issued by NDEP, Bureau of Water Quality Planning, as required for water quality assurances if a Section 404 Department of Army permit is issued by the U.S. Army Corps of Engineers. If construction equipment is required to enter in or near Waters of the State and/or ephemeral stream channels, the contractor will obtain a Temporary Working in Waterways Permit issued by NDEP, Bureau of Water Pollution Control.
- As part of the Final EIS, RTC and NDOT will coordinate with local agencies and municipalities to determine the necessary permanent water quantity/quality basins and other structural BMPs, and locations, to maintain compliance with applicable water quality regulations. Continue coordination with TMWA, NDEP, and the Washoe County of Department of Water Resources to avoid and minimize impacts to public groundwater wells and well head protection areas. This includes relocation of Desert Springs Well #2, which will require a site and/or sites of equal water



quality and yield, and access considerations for maintenance of Spring Creek Well #2.

3.11 WETLANDS AND WATERS OF THE U.S.

This section describes the existing wetlands and waters of the U.S. located in the Study Area and the potential impacts resulting from the build alternatives.

Wetlands provide a wide variety of economically and ecologically important functions. Wetlands provide water quality improvement, groundwater recharge/discharge, bank stabilization, flood protection, food chain support, fish and wildlife habitat, rare species habitat, and opportunities for education, research, and recreation.

Recognizing the importance of clean water and the ecological value of wetlands, in 1977 the U.S. Congress passed the Clean Water Act (CWA) to protect the physical, biological, and chemical quality of waters of the U.S., including adjacent wetlands. Section 404 of the CWA defines waters of the U.S. as all traditional navigable waters and their tributaries, all interstate waters and their tributaries, all wetlands adjacent to these waters, and all impoundments of these waters. The definition of waters of the U.S. under U.S. Army Corps of Engineers (USACE) jurisdiction does not include wetlands that lack a surface connection to, or a shallow sub-surface hydrologic connection between adjacent wetlands and a jurisdictional water, and therefore are isolated from, regulated waters. The USACE regulatory program administers, and the EPA enforces, Section 404 of the CWA.

In addition to CWA requirements, EO 11990: Protection of Wetlands directs lead federal agencies, in this instance FHWA, to protect wetlands by avoiding direct or indirect support of construction in wetlands when a practicable alternative is available. The order also calls for federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the destruction or modification of wetlands. FHWA has its own wetland regulations, found in 23 CFR 777 – Mitigation of Impacts to Wetlands and Natural Habitat Final Rule.

3.11.1 Methods

To determine existing conditions, the Study team conducted a wetland inventory in the Study Area in September 2010 following criteria set forth in the USACE *Wetlands Delineation Manual*, 1987, and the Arid West Regional Supplement (Version 2.0) to ensure consistency with federal, state, and local regulations. The manual outlines

Wetlands and Waters of the U.S.

Wetlands are “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.”

—U.S. Army Corps of Engineers *Wetlands Delineation Manual*, 1987

methods used to determine the presence of wetlands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. The Region 8 (Intermountain) Wetland Indicator List (Reed, 1988) was used to determine the hydrologic indicator status of plant species. Hydric soils were field identified on the basis of hydric soil indicators, including color, mottling (patches of different colors) presence of water, and water saturation levels. A Munsell Soil Color Chart was used to determine soil color. The team completed Routine Wetland Delineation forms for each wetland community type, and photographs document each representative wetland. Wetland community types were classified according to Cowardin et al, 1979.

During wetland determinations, wetland scientists collected data for all accessible wetlands on location, dominant vegetation, wetland plant associations, Cowardin wetland class, and basic wetland functions.

All wetland information collected from the field and aerial mapping was digitized and converted into Geographic Information System (GIS) shape files and database files. Data extracted from a Global Positioning System unit was differentially corrected then exported into GIS mapping.

To be subject to federal jurisdiction, a wetland must exhibit positive indicators for three mandatory diagnostic environmental characteristics, or technical criteria: vegetation, soil, and hydrology. All wetlands in the Study Area were delineated based on the same criteria, regardless of their potential jurisdictional status.

For waters of the U.S. designations, the Study team followed guidance provided in the U.S. Environmental Protection Agency and U.S. Army Corps of Engineers' guidance memorandum entitled *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States* (December 02, 2008). In April 2011, the EPA and the U.S. Army Corps of Engineers released draft guidance to clarify protection of waters under the Clean Water Act. This more recent guidance does not affect any of the waters designations made in the field.

3.11.1.1 Hydrophytic Vegetation

Hydrophytic plants are those plants that are adapted to life in water, soil, or on a substrate that at least periodically experiences anoxic or conditions lacking dissolved oxygen. The U.S. Fish and Wildlife Service (USFWS) has assigned plant indicator status for species based on their frequency of occurrence in wetlands. Plant indicator status categories are described in Table 3-32.

For a vegetation community to be considered hydrophytic, greater than 50 percent or more of the dominant species in that area are rated as facultative, facultative wetland, or obligate wetland.



Table 3-32. Plant Indicator Status Categories

Indicator Status	Definition
Obligate Wetland (OBL)	Occur almost always in wetlands under natural conditions (probability >99%).
Facultative Wetland (FACW)	Usually occur in wetlands (probability >67% to 99%), but occasionally found in non-wetlands
Facultative (FAC)	Equally likely to occur in wetlands or non-wetlands (probability 33% to 67%).
Facultative Upland (FACU)	Usually occur in non-wetlands, but occasionally found in wetlands (probability 1% to <33%).
Obligate Upland (UPL)	Occur rarely in wetlands under natural conditions (probability <1%).
No Indicator Status (NI)	Insufficient information exists to assign an indicator status.

Source: U.S. Fish and Wildlife Service, 1988.

3.11.1.2 Hydric Soils

Hydric soils are defined as those soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation, which is vegetation that is adapted to grow in water. Determination of hydric soils was based on the direct observation of either direct evidence of flooding or ponding, or the presence of hydric soil indicators.

To examine for hydric soil indicators, wetland scientists made soil pits with shovels. They determined soil color and identified redoximorphic features using the Munsell soil color charts (Macbeth, 1994), and textures were determined using hand texturing in coordination with a texture-by-feel analysis flow chart for proper identification.

3.11.1.3 Wetland Hydrology

Wetland hydrology was based on field observations. Areas possessing wetland hydrology were inundated either permanently or periodically; or the soil was presumed to be saturated to the surface for sufficient time during the growing season to influence soil conditions and plant growth.

3.11.2 Existing Conditions

3.11.2.1 Wetlands

The Study Area lies in the USDA designated Major Land Resource Area (MLRA) #26 – Carson Basin and Mountains. The Carson Basin and Mountains MLRA is defined by three valleys and the river systems that drain them. The river nearest to the Study Area is the Truckee River, which flows from Lake Tahoe eastward to its terminus at Pyramid Lake. The average annual precipitation in the area is 5 to 36 inches, increasing with elevation. Most of the rainfall accompanies high-intensity, convective storms in spring and autumn. Precipitation in winter is mostly snow. Summers are characteristically dry.

Historically, wetlands in the Truckee River basin have incurred some of the highest losses within the state- an estimated 82 percent of them have been altered. In a dry

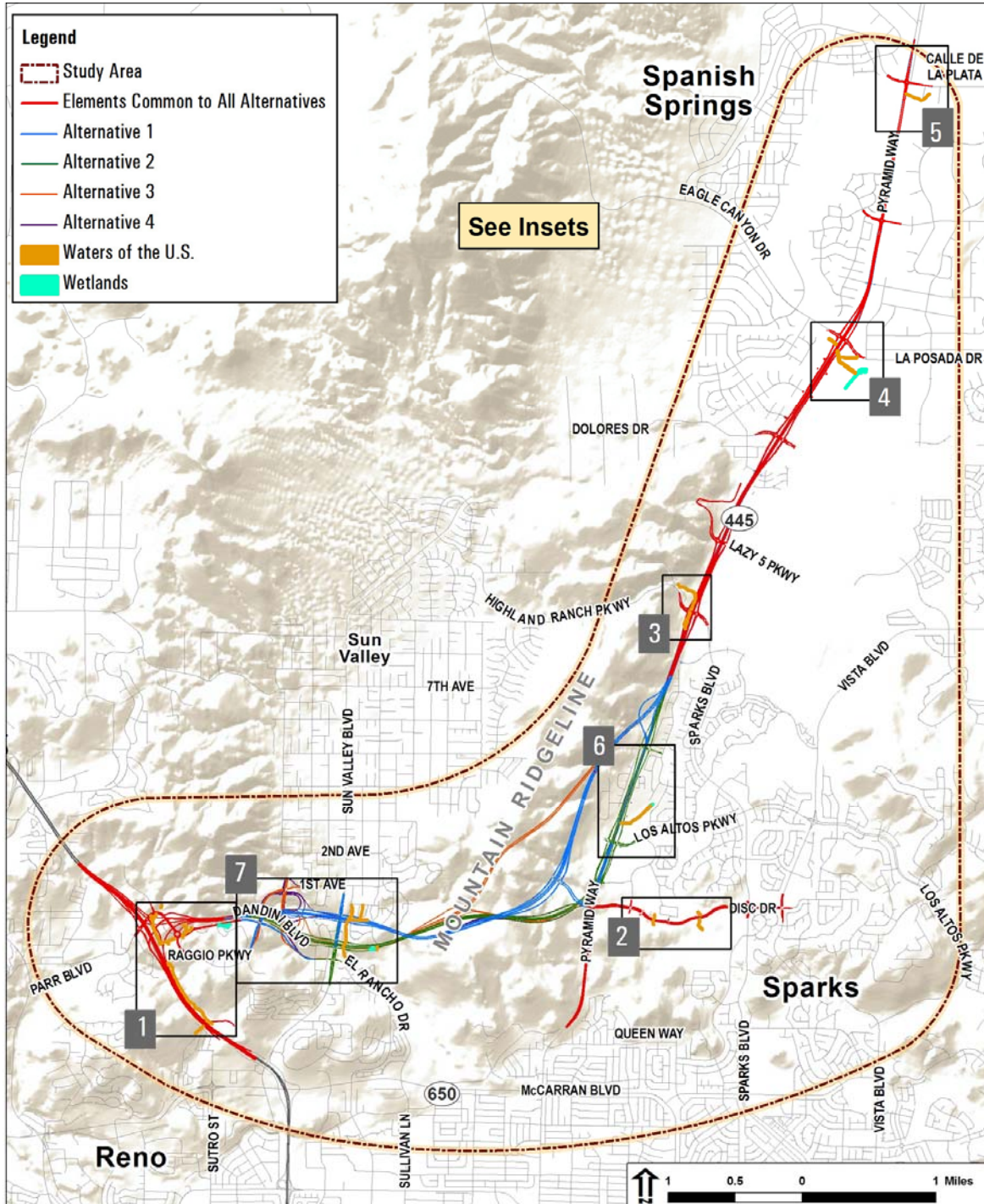
climate, such as is found in the Study Area, wetlands generally support the most diverse and abundant vegetation and wildlife habitat found in the region.

Based on the classifications of waters and wetlands developed by Cowardin and others (USFWS, 1979), wetland types in the Study Area are palustrine emergent systems with persistent vegetation. Common wetland species include cattail (*Typha spp.*), alkali bulrush (*Scirpus maritimus*), Nevada goldenrod (*Solidago spectabilis*), narrowleaf milkweed (*Asclepias fascicularis*), fringed willowherb (*Epilobium ciliatum*), sedges (*Carex spp.*), and curly dock (*Rumex crispus*). Functional values provided by wetlands in the Study Area include water quality improvement, pollutant removal, groundwater recharge/discharge, bank stabilization, food chain support, and wildlife habitat. The Study team delineated the seven wetland sites in the Study Area totaling 0.87 acre, as shown in Figure 3-39. The existing wetlands total 0.87 acre, as summarized in Table 3-33.

Table 3-33. Wetlands in the Study Area

Site ID	Acres (Square Feet)	Wetland Type	USACE Jurisdictional*	Comments
Wetland 1	0.11 (5,646)	Emergent	Yes	Emergent wetland associated with the Orr Ditch. Wetland area occurs as a fringe along the banks of the irrigation canal.
Wetland 2	0.27 (11,547)	Emergent	Yes	Emergent wetland adjacent to Orr Ditch.
Wetland 3	0.06 (2,788)	Emergent	Yes	Emergent wetland associated with the Orr Ditch. Wetland area occurs as a fringe along the banks of the irrigation canal.
Wetland 4	0.12 (5,136)	Emergent	Potentially Isolated	Emergent wetland associated with a seep
Wetland 5	0.26 (11,470)	Emergent	Potentially Isolated	Emergent wetland associated with a seep
Wetland 6	0.007 (325)	Emergent	Yes	Small wetland fringe associated with the North Truckee Drain
Wetland 7	0.022 (965)	Emergent	Yes	Small wetland fringe dispersed along the banks of the North Truckee Drain
Total	0.87 Acre			

* The jurisdictional status of each wetland feature is subject to review and an official determination by the USACE.



Note: Insets are shown on Figure 3-40 and Figure 3-41.

Figure 3-39. Wetlands and Waters of the U.S. Impact Locations

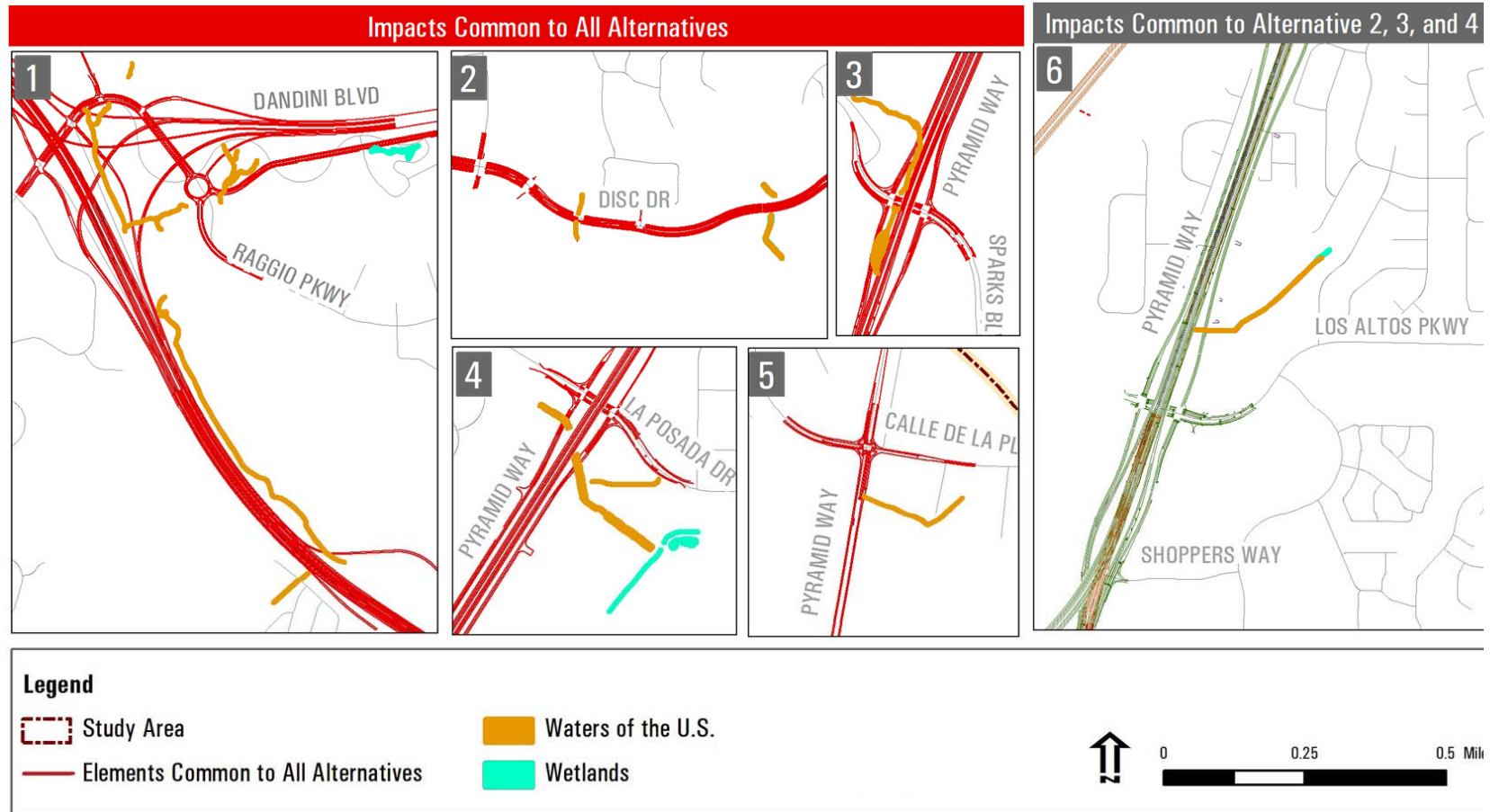


Figure 3-40. Wetlands and Waters of the U.S. Impacts

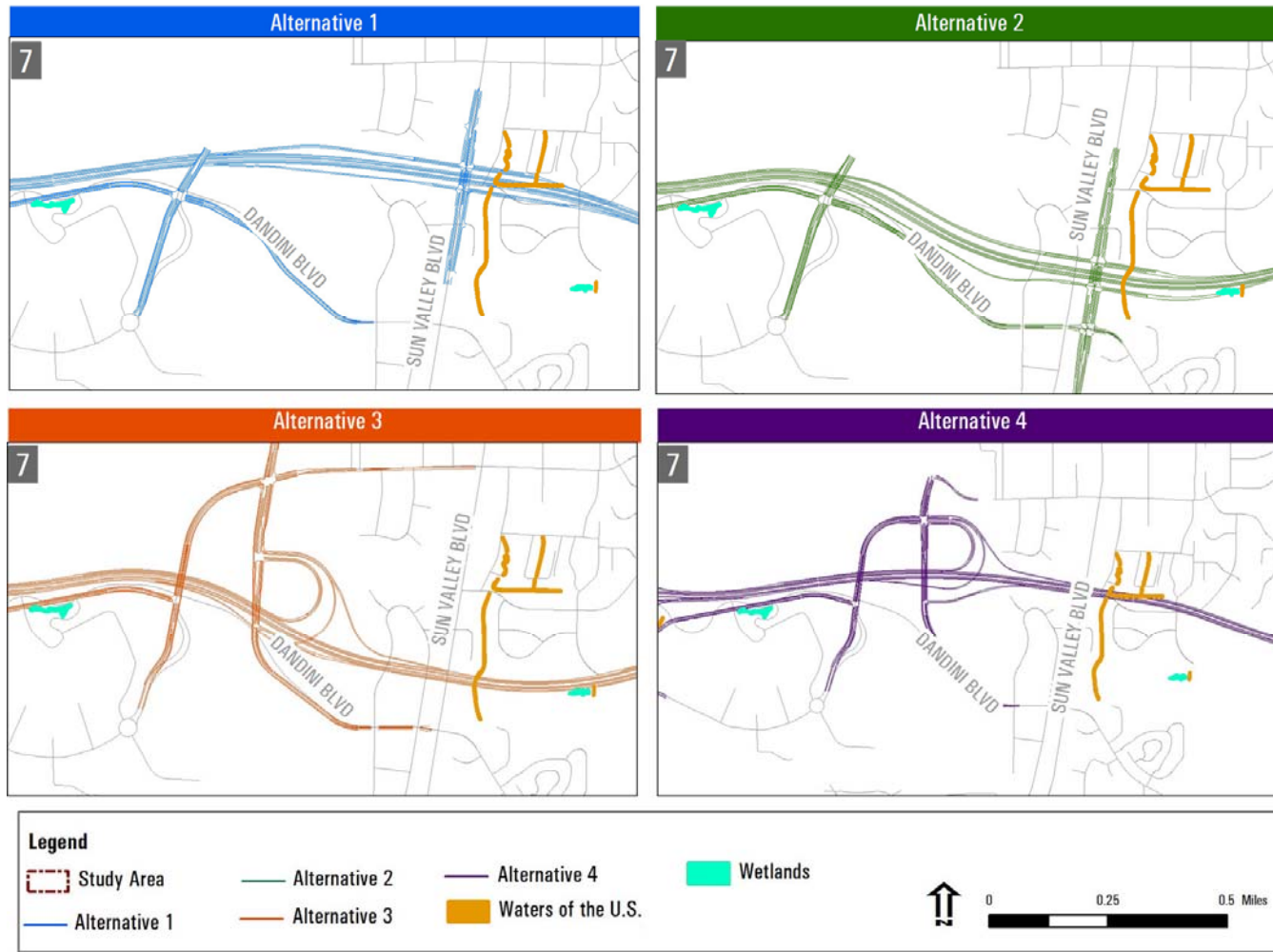


Figure 3-41. Wetlands and Waters of the U.S. Impacts

3.11.2.2 *Waters of the U.S.*

As discussed in Section 3.10 *Water Resources and Water Quality*, the Study Area lies within the 1,190-square-mile Truckee River Watershed, which encompasses parts of Washoe County and the Truckee Meadows. The watershed is part of the larger Truckee River Basin and is influenced mainly by the Truckee River, which flows from Lake Tahoe northeast to Pyramid Lake. The Truckee River is located approximately 1.5 miles south of the Study Area.

Surface waters and potential waters of the U.S. in the Study Area are limited to agricultural ditches and unnamed intermittent and ephemeral drainages that primarily convey stormwater drainage during and immediately after storm events. The mapped intermittent and ephemeral drainage features in the Study Area will be subject to USACE's review and official jurisdictional determination. The two primary water conveyances and jurisdictional water features in the Study Area are the Orr Ditch and the North Truckee Drain. Waters of the U.S. features in the Study Area are shown on Figure 3-39.

3.11.3 Wetlands and Waters of the U.S. Impacts

Wetland impacts can be defined as direct, indirect, and temporary. Both direct and indirect impacts could result in the permanent loss of wetlands. Wetlands and waters of the U.S. impacts were determined by overlaying mapped wetlands and waters on build alternative and construction disturbance footprints. The impacts in the Study Area are illustrated on Figure 3-39, Figure 3-40, and Figure 3-41.

The Study Team evaluated these impacts quantitatively in terms of temporary and permanent disturbances. Temporary disturbances include those wetlands or other waters of the U.S. that would experience a temporary modification of functions, but would be returned to their pre-construction state after construction. Temporary wetland impacts generally occur from the short-term disturbance necessary for activities like construction access.

Permanent impacts generally include wetlands and other waters of the U.S. that would be destroyed as a result of the project. Direct permanent impacts would result from such activities as roadway paving, placement of fill, construction of culverts, placement of bank stabilization measures (e.g., riprap), or construction of curb and gutter with sidewalks. Indirect impacts could result from increased stormwater runoff, hydrologic changes, or shading from bridge structures.

3.11.3.1 *No-Action Alternative*

The No-Action Alternative would not impact existing wetlands or waters of the U.S. in the Study Area.



3.11.3.2 Build Alternatives

Impacts Common to All Build Alternatives

Wetland impacts common to all build alternatives include approximately 10 square feet of permanent impacts and 0.04 acre of temporary impacts. These impacts result primarily from the realignment of Dandini Boulevard.

Each build alternative would result in approximately 0.2 acre of permanent impacts and 0.6 acre of temporary impacts to waters of the U.S. Impacted waters of the U.S. include the Orr Ditch, intermittent/ephemeral drainages, and two unnamed drainage ditches. These impacts would result from the following transportation improvements:

During final design, the Lead Agencies will seek to further avoid and minimize impacts to wetlands and waters of the U.S. Avoidance measures to be considered include construction of retaining walls, steepening of construction slopes, and utilizing bridge structures instead of culverts where feasible.

- Widening Pyramid Highway at the intersection with Calle de la Plata. Construction in this location would consist of roadway pavement, curb and gutter with a sidewalk, and a soil cut slope.
- A new interchange would replace the new at-grade intersection of Pyramid Highway and Eagle Canyon Road. Construction in this location would include lowering the grade of the existing intersection, roadway pavement, curb and gutter with sidewalk, culverts, and water quality ponds.
- Widening US 395 and construction of a new interchange with US 395 and the proposed US 395 Connector would involve building multiple bridges over local roads and highway ramps. Construction would include soil cut and fill slopes, bridges, roadway pavement, culverts, and water quality ponds
- Widening Disc Drive would result in additional roadway pavement, curb and gutter with sidewalk, and culvert extension.

Construction of the build alternatives could potentially result in indirect impacts to wetlands from increased stormwater runoff, sedimentation, flow constrictions, hydrologic changes, or changes in local drainage patterns.

No impacts to Waters of the U.S. within the study area would occur on BLM land.

Alternative 1

In addition to the impacts common to all build alternatives, Alternative 1 would permanently impact no additional wetlands and approximately 0.2 acre of waters of the U.S. Temporary impacts include approximately 76 square feet of wetlands and 0.37 acre of waters of the U.S. These impacts would result from a new interchange replacing the at-grade intersection of Pyramid Highway at Sparks Boulevard. Construction at this

location would include lowering the grade of the existing intersection, culverts, roadside ditches, curb and gutter with sidewalk, and roadway pavement. Additional impacts are the result of widening Pyramid Highway and lowering the grade of the highway, and constructing the new US 395 Connector. Construction would include soil fill slopes, roadway pavement, culverts, and a permanent water quantity/quality basin.

Alternative 2

In addition to the common impacts common to all build alternatives, Alternative 2 would permanently impact approximately 0.08 acre of wetlands and 0.1 acre of waters of the U.S. In addition, temporary impacts include approximately 0.05 acre of wetlands and 0.34 acre of waters of the U.S.

Wetland impacts would result from a new interchange replacing the at-grade intersection of Los Altos Parkway and Pyramid Highway, and a new interchange at Sun Valley Boulevard and the proposed US 395 connector. Construction would include roadway pavement, curb and gutter with sidewalk and soil fill slopes.

Waters of the U.S. impacts would result from the construction of a new interchange replacing the at-grade intersection of Pyramid Highway at Sparks Boulevard, culverts, roadside ditches, curb and gutter with sidewalk and roadway pavement. Impacts would also result from construction of a new interchange, which would replace the at-grade intersection of Los Altos Parkway and Pyramid Highway. Construction at this location would include roadway pavement and a soil cut slope. Additional waters of the U.S. impacts would result from construction of a new interchange at Sun Valley Boulevard, widening Pyramid Highway and lowering the grade of the highway, and constructing the new US 395 Connector. Construction would include soil fill slopes, roadway pavement, bicycle trail pavement, culverts, and water quality ponds.

Total permanent impacts for Alternative 2 would be approximately 0.08 acre of wetlands and 0.3 acre of waters of the U.S. impacts, which includes the impacts common to all build alternatives.

Alternative 3

In addition to the common impacts described above, Alternative 3 would permanently impact approximately 510 square feet of wetlands and 0.08 acre of waters of the U.S. In addition, temporary impacts include approximately 0.11 acre of wetlands and 0.35 acre of waters of the U.S.

Wetland impacts would result from the widening of Pyramid Highway and lowering the existing grade of the highway and construction of a new interchange at Sun Valley Boulevard and the proposed US 396 Pyramid Connector. Construction would include roadway pavement, bicycle trail pavement, curb and gutter with sidewalk and soil fill slopes.



Waters of the U.S. impacts would result from the construction of a new interchange replacing the at-grade intersection of Pyramid Highway at Sparks Boulevard, culverts, roadside ditches, curb and gutter with sidewalk and roadway pavement. Additional impacts would result from construction of two interchanges at Sun Valley Boulevard and the proposed US 395 Pyramid Connector. Construction at this location would include soil fill slopes, roadway pavement, soil fill slopes, and bicycle trail pavement.

Total permanent impacts for Alternative 3 would be approximately 520 square feet of wetlands and 0.28 acre of waters of the U.S. impacts, which includes the impacts common to all build alternatives.

Alternative 4

In addition to the common impacts described above, Alternative 4 would permanently impact approximately 99 square feet of wetlands and 0.19 acre of waters of the U.S. In addition, temporary impacts include approximately 190 square feet of wetlands and 0.38 acre of waters of the U.S.

Wetland impacts would result from the construction of a new interchange replacing the at-grade intersection of Los Altos Parkway and Pyramid Highway. Construction at this location would include roadway pavement, curb and gutter with sidewalk and a soil fill slope.

Waters of the U.S. impacts would result from the construction of a new interchange replacing the at-grade intersection of Pyramid Highway at Sparks Boulevard, culverts, roadside ditches, curb and gutter with sidewalk and roadway pavement. Additional impacts would result from construction of two interchanges at Sun Valley Boulevard and Los Altos Parkway and the proposed US 395 Pyramid Connector. Construction would include soil fill slopes, roadway pavement, bicycle trail pavement, culverts, and water quality ponds.

Total permanent impacts for Alternative 4 would be approximately 109 square feet of wetlands and 0.39 acre of waters of the U.S. impacts, which includes the impacts common to all build alternatives.

Wetlands and Waters of the U.S. Impacts Summary

Permanent impacts to wetlands and waters of the U.S. resulting from construction of each of the build alternatives are summarized in Table 3-34.

As summarized in Table 3-34, Alternative 2 would impact the greatest amount of wetlands and Alternative 1 would impact the greatest amount of waters of the U.S., Alternative 1 would have the fewest impacts to wetlands and Alternative 3 would have the fewest impacts to waters of the U.S. Overall, Alternative 3 would have the fewest impacts to both wetlands and waters of the U.S.

3.11.4 Wetlands and Waters of the U.S. Mitigation

Per the USACE and EPA Compensatory Mitigation for Losses of Aquatic Resources Final Rule (Final Rule) (40 Code of Federal Regulations [CFR] Part 230) (Final Rule) (2009), the USACE is taking an “environmentally preferable” approach to the mitigation of impacts to waters of the U.S. The Final Rule states that the USACE will “assess the likelihood for ecological success and sustainability, the location of the compensation site relative to the impact site and their significance within the watershed” when making mitigation determinations, and “compensatory mitigation requirements must be commensurate with the amount and type of impact that is associated with the particular permit.”

Table 3-34. Permanent Impacts to Wetlands and Waters of the U.S.

Resource Wetlands (Site ID)	Common to All Build Alternatives	Permanent Impacts by Alternative			
		Alt. 1	Alt. 2	Alt. 3	Alt. 4
1	-	-	-	-	-
2	-	-	-	-	-
3	-	-	99 square feet	-	99 square feet
4	-	-	3,364 square feet (0.07 acre)	510 square feet	-
5	10 square feet	-	-	-	10 square feet
6	-	-	-	-	-
7	-	-	-	-	-
Waters of the US	0.2 acre	0.2 acre	0.1 acre	0.08 Acre	0.19 Acre
Total*	Wetlands—10 square feet	Wetlands—No permanent impacts	Wetlands—3,463 square feet (0.08 acre)	Wetlands—510 square feet	Wetlands—99 square feet
	Waters of the U.S. = 0.2 acre	Waters of the U.S = 0.4 acre	Waters of the U.S= 0.3 acre	Waters of the U.S. = 0.28 acre	Waters of the U.S= 0.39 acre

* Total impacts include Impacts Common to All Build Alternatives.

Per Section 404 of the CWA, impacts to wetlands and other water features must be avoided, minimized, or mitigated (in order of preference). Although the Act requires compensatory mitigation only from those wetlands and other water features considered jurisdictional by the USACE, it is FHWA policy to mitigate all wetland impacts (jurisdictional and non-jurisdictional). All impacted wetlands and other water features will be mitigated in accordance with current USACE mitigation policies and the conditions of the USACE Section 404 Permit.

RTC and/or NDOT will use BMPs to offset the extent and duration of any temporary or indirect impacts. Appropriate BMPs to prevent and minimize temporary or indirect impacts to wetlands will be followed during construction. These BMPs could include:



- Protect wetland areas not impacted by the project from construction activities by temporary and/or construction limit fencing.
- Install sediment control measures where needed to prevent sediment filling wetlands.
- Prohibit fertilizing or hydro-mulching within 50 feet of a wetland.
- Reclaim and revegetate disturbed areas with native grass and forb species. Seed, mulch, and mulch tackifier will be applied in phases throughout construction.
- Develop a stormwater management plan with appropriate BMPs to minimize adverse effects to water quality.
- Use, erosion logs, silt fence, or other sediment control devices as sediment barriers and filters adjacent to wetlands, surface waterways, and at inlets where appropriate.
- Locate construction staging areas at a distance of greater than 50 feet from adjacent stream/riparian areas to avoid disturbance to existing vegetation, avoid point source discharges, and to prevent spills from entering the aquatic ecosystem, including concrete washout.
- Reclaim temporary impacts to waters of the U.S. and adjacent habitat with native plant and shrubs.

With proper use and management of BMPs for stormwater and construction disturbances, minimal sediment should reach wetland areas. The toes of new construction will be stabilized with silt fence or erosion logs.

If a build alternative is identified as the Preferred Alternative, a Wetland Finding will be prepared, and the Final EIS will document FHWA's compliance with EO 11990 (see above). This will include a determination on whether a practicable alternative exists to the proposed new construction in wetlands. This project is anticipated to qualify for a Section 404 Nationwide permit or permits. After avoidance and minimization measures are conducted during final design, the Study team will further define Section 404 permit requirements.

3.12 FLOODPLAINS

This section describes the existing Federal Emergency Management Agency (FEMA)-regulated 100-year floodplains (floodplains) located in the Study Area and potential impacts resulting from project alternatives. Changes to floodplains may result from such activities as adding fill, excavating, and/or constructing bridges and other structures within floodplains. Such activities have the potential to affect the natural conveyance of the channel and can increase flood risk to nearby properties not formerly affected by storm events.

100-Year Floodplain

One hundred-year floodplains are defined as those areas having a one percent chance of flooding in any given year.

Floodplains provide many functions and benefits, including flood retention and storage, habitat, and filtering of pollutants from stormwater runoff. EO 11988 requires federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. In accomplishing this objective, “each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities.” Federal agencies consult with FEMA concerning implementation of this EO. Also, FHWA-sponsored projects comply with the FHWA floodplain regulations found in 23 CFR 650 Subpart A.

3.12.1 Methods

The Study team developed an overall floodplain map using Flood Insurance Rate Maps (FIRMs) – maps on which FEMA has identified special hazard areas, including the 100-year floodplain. Next, the conceptual designs of the build alternatives were overlain with the FIRMs to assess each of the alternatives’ relative effects on floodplains and conveyance by determining an approximate amount of fill that would be discharged to the 100-year floodplain as a result of the build alternatives. This analysis did not include hydraulic modeling of floodplains. Additional hydraulic design will be conducted during the design phase to more accurately determine floodplain impacts and appropriate mitigation measures.

The following FEMA flood zones are found within the Study Area:

- Zone A – The 1 percent annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The special flood hazard area is the area subject to flooding by the 1 percent annual chance flood. The base elevation is the water surface elevation of the 1 percent annual chance flood. Zone A is defined as an area where the no base flood elevations are determined.
- Zone AE – The 1 percent annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1 percent chance of being equaled or exceeded in any given year. The special flood hazard area is the area subject to flooding by the 1 percent annual chance flood. The base elevation is the water surface elevation of the 1 percent annual chance flood. Zone AE is defined as an area where the base flood elevations are determined.
- Zone X – Areas of 0.2 percent annual chance flood; areas of 1 percent annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile, and areas protected by levees from 1 percent annual chance flood.



3.12.2 Existing Conditions

Floodplains in the Study Area are associated with two separate washes, as illustrated in Figure 3-42 and described below.

Spanish Springs Wash

Located in the northeastern portion of the Study Area, the Spanish Springs Wash generally flows north to south. This floodplain is encroached upon by numerous roads in the Study Area, including Sparks Boulevard, Los Altos Parkway, Disc Drive, and twice beneath Pyramid Highway. The floodplain varies in width from approximately 100 to 2,000 feet. The FEMA-designated flood zone for the Spanish Springs Wash is Zone A. In the Study Area, the wash passes through predominantly sagebrush habitat, but does support intermittent wetlands, which provide water quality and flood retention.

Sun Valley Wash

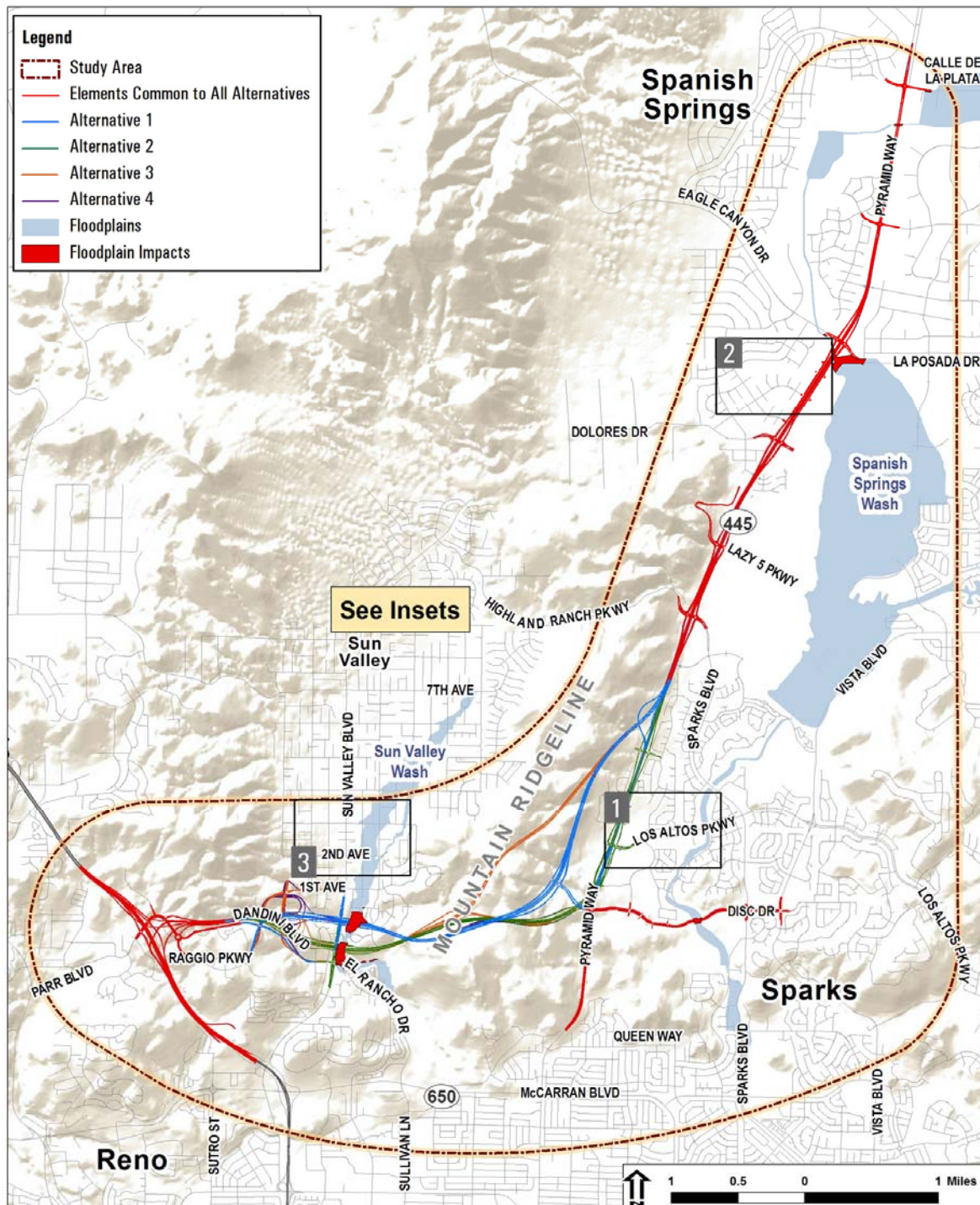
Located in the southwest portion of the Study Area, the Sun Valley Wash generally flows north to south. In this area, the floodplain varies in width from approximately 250 to 550 feet. The FEMA-designated flood zones for the Sun Valley Wash are both Zone AE and Zone X and extend from the upper reach of the Sun Valley Basin, through Sun Valley to the Sun Valley Diversion Dam. In the Study Area, the wash passes through predominantly sagebrush habitat, but does support some riparian vegetation along its banks in residential areas. Residential development and transportation uses within the 100-year floodplain are common.

3.12.3 Floodplain Impacts

Impacts to floodplains would result from roadway widening, construction of Park and Ride facilities, installation of water quantity/quality basins, and installation or replacement of drainage infrastructure, such as culverts, diversions, and ditches. All drainage infrastructure for the build alternatives was sized to meet the requirements of the *NDOT Drainage Manual*, December 2006, and the *Truckee Meadows Regional Drainage Manual*, April 2009. These activities would introduce fill into the floodplain, potentially including earthen fill, bridge piers, abutments, and retaining walls. The locations of the floodplains in the Study Area and the specific impacts are shown in Figure 3-42, Figure 3-43, and Figure 3-44.

3.12.3.1 No-Action Alternative

The No-Action Alternative would not affect the existing floodplains; therefore, it would not affect the natural and beneficial values of floodplains.



Note: Insets are shown on Figure 3-43 and Figure 3-44.

Figure 3-42. Floodplains Locations



1

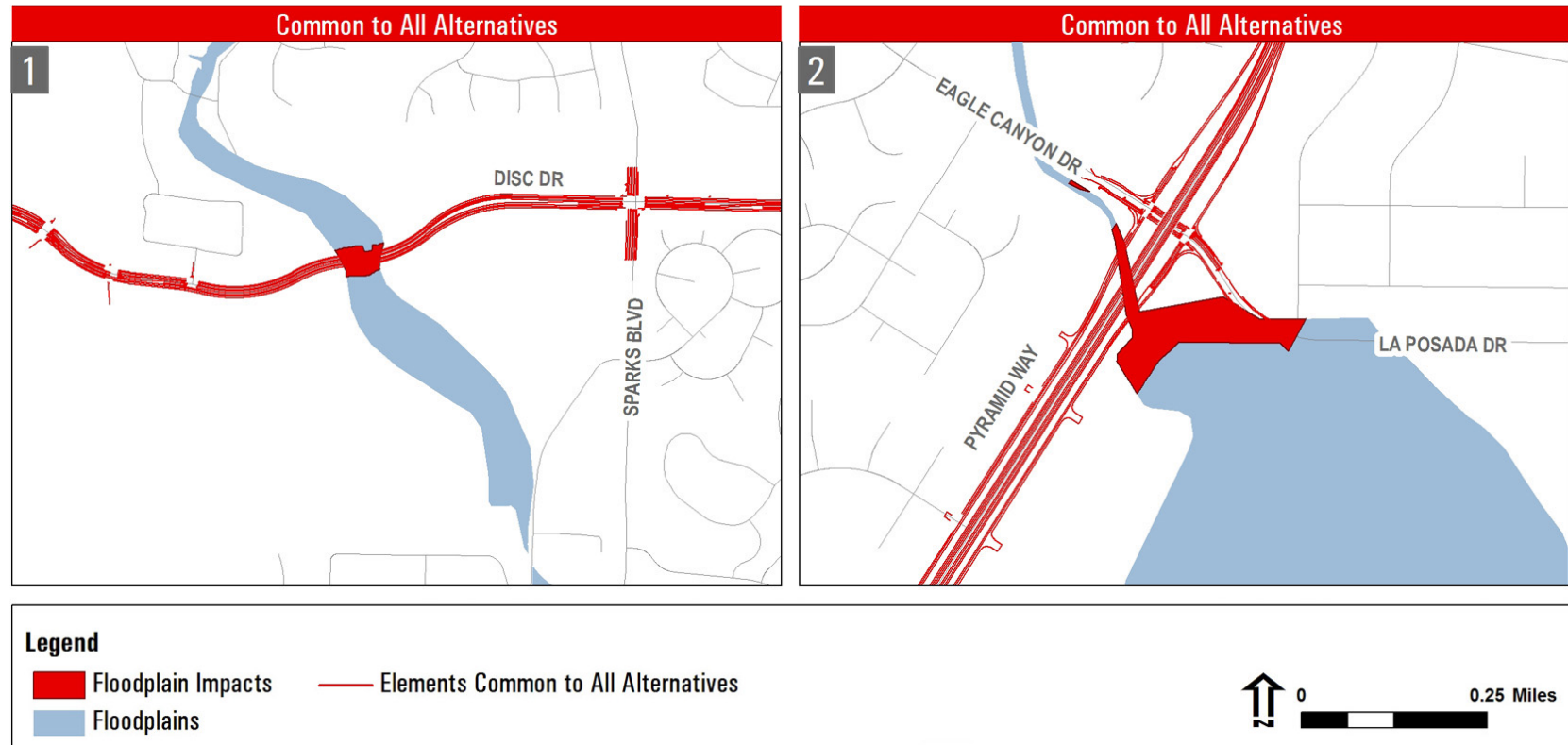


Figure 3-43. Floodplains Impacts – Common to All Build Alternatives

2

3

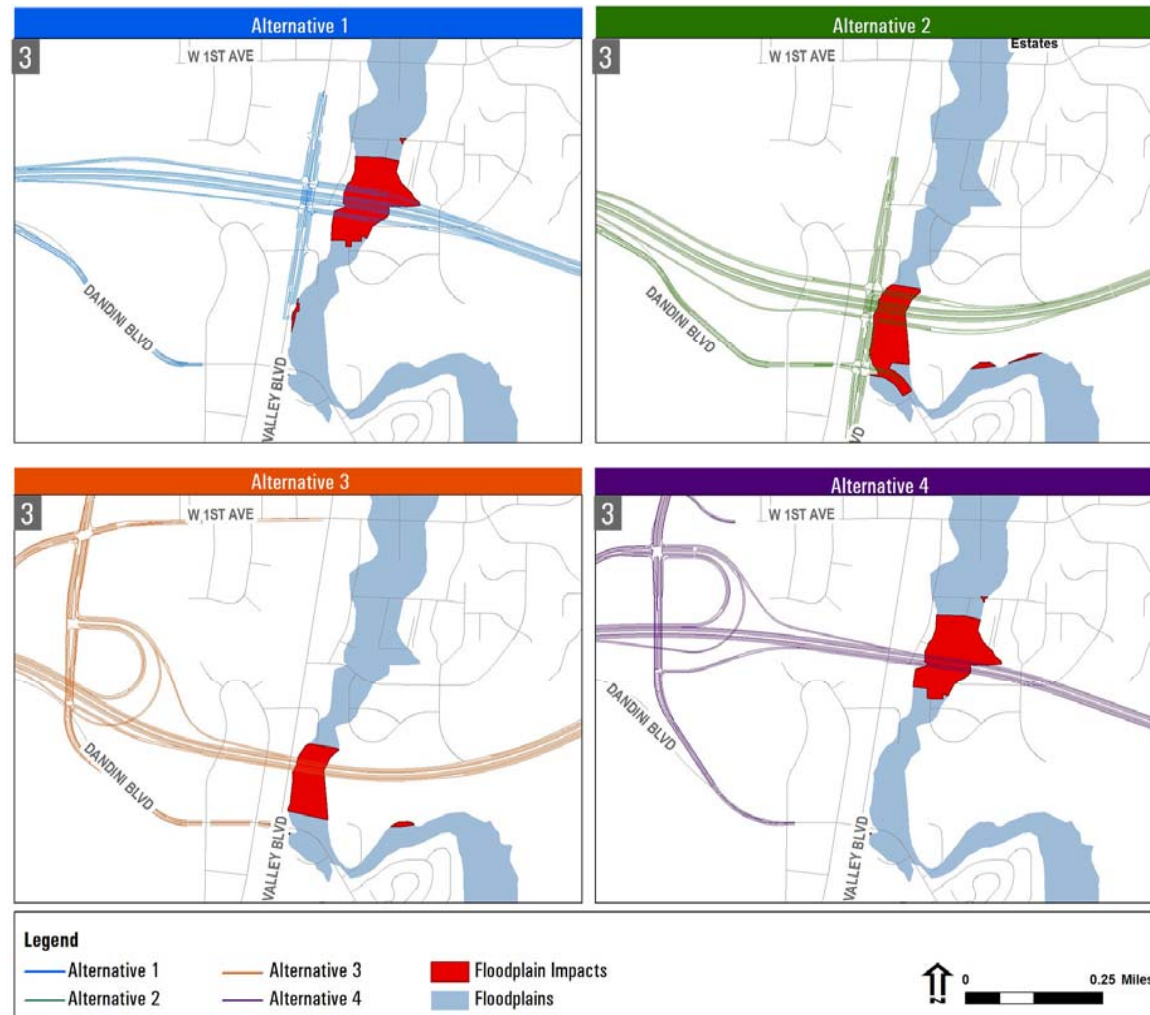


Figure 3-44. Floodplains Impacts – Alternatives 1, 2, 3, and 4



3.12.3.2 Build Alternatives

Impacts Common to All Build Alternatives

All of the build alternatives would involve a total of approximately 9.5 acres of floodplain impact to the Spanish Springs Wash associated with modifications proposed at the two Pyramid Highway crossings and the Disc Drive crossing. These impacts would result from earthen fill, construction of retaining walls, and placement of culverts to convey stormwater flows within the wash.

The northern-most Pyramid Highway crossing of the Spanish Springs Wash is located north of Calle de la Plata; modifications in this area would result in approximately 0.6-acre of floodplain impact. The other Pyramid Highway crossing of the Spanish Springs Wash is located at La Posada Drive. Modifications in this area would result in approximately 8.8 acres of floodplain impact. Construction in these areas would include widening of the existing Pyramid Highway, the proposed interchange at Pyramid Highway and La Posada Drive, a new Park and Ride facility, and two new water quantity/quality basins.

Modifications at the Disc Drive crossing of Spanish Springs Wash would result in an approximately 0.07 acre of floodplain impact. Construction within this portion of the floodplain would include widening of Disc Drive from four to six lanes and the associated extensions of existing culverts.

Without appropriate mitigation, encroachment of the 100-year floodplain can increase flood elevations, thereby putting adjacent, upstream, and downstream properties at risk. In the case where flood elevations are increased a Letter of Map Revision (LOMR) will be completed and mitigation measures included in the design to protect affected properties.

Vegetation loss within floodplains along both Spanish Creek Wash and Sun Valley Wash would be minimal because there is limited existing vegetation in these areas.

Indirect impacts resulting from development in the floodplain from induced growth is unlikely. The area surrounding the Sun Valley is already developed. The floodplain associated with the Spanish Springs Wash is developed in the southern portion of the Study Area. Future land uses in the northern portion of the Study Area indicate protection via parks and open space. Additional information and a map illustrating future land use is contained in Section 3.1.2.3 *Future Land Use*.

None of the roadway crossings associated with the build alternatives would result in a significant encroachment on the floodplain. A significant encroachment is defined by

None of the build alternatives' roadway crossings would have a significant encroachment on the floodplain.

FHWA as a transportation encroachment, and any direct support of a likely base floodplain development that would involve one or more of the following construction or flood related impacts:

- A significant potential for interruption or termination of a transportation facility that is needed for emergency vehicles or provides a community's only evacuation route.
- A significant risk.
- A significant adverse impact on natural and beneficial floodplain values.

Alternative 1

In addition to the 9.5 acres of impacts common to all build alternatives, Alternative 1 would impact approximately 9.1 acres of floodplains associated with the Sun Valley Wash. These impacts are the result of a new bridge over Sun Valley Wash and Sun Valley Boulevard and two new, at-grade frontage roads. Construction within the Sun Valley Wash floodplain would include earthen fill, retaining walls, and culverts.

Alternative 2

In addition to the 9.5 acres of impacts common to all build alternatives, Alternative 2 would impact approximately 6.6 acres of floodplains associated with the Sun Valley Wash. These impacts are the result of a new bridge over Sun Valley Wash and Sun Valley Boulevard and two new, at-grade frontage roads. Construction within the Sun Valley Wash floodplain would include earthen fill, retaining walls, and culverts.

Alternative 3

In addition to the 9.5 acres of impacts common to all build alternatives, Alternative 3 would impact approximately 4.9 acres of floodplains associated with the Sun Valley Wash. These impacts are the result of a new bridge over Sun Valley Wash and Sun Valley Boulevard. Construction within the Sun Valley Wash floodplain would include earthen fill, retaining walls, and culverts.

Alternative 4

In addition to the 9.5 acres of impacts common to all build alternatives, Alternative 4 would impact approximately 8.6 acres of floodplains associated with the Sun Valley Wash. These impacts are the result of a new bridge over Sun Valley Wash and Sun Valley Boulevard and a new at-grade roadway extending from Sun Valley Boulevard to the west. Construction within the Sun Valley Wash floodplain would include earthen fill, retaining walls, and culverts.

Floodplain Impacts Summary

Impacts to floodplains resulting from the construction of build alternatives are summarized in Table 3-35.



Table 3-35. Potential Floodplain Encroachment

Common to All Build Alternatives	Alternative 1	Alternative 2	Alternative 3	Alternative 4
9.5 acres	9.1 acres	6.6 acres	4.9 acres	8.6 acres
Total	18.6	16.1	14.4	18.1

Alternative 1 would have the greatest impact on floodplains, and Alternative 3 would have the least impact.

3.12.4 Floodplain Mitigation

During final design, and consistent with EO 11988 and Washoe County's Flood Hazard Ordinance 416, impacts to the floodplains will be minimized to the extent possible. RTC and/or NDOT will conduct additional hydraulic analysis as part of the final design phase to identify specific impact avoidance, minimization, and mitigation measures including preservation of beneficial floodplain values. During final design, RTC and/or NDOT will minimize impacts to the floodplain by doing the following:

- Minimizing fill in the floodplain.
- Using retaining walls and other design features where practical.
- Avoiding, to the maximum extent practicable, longitudinal encroachment of the floodplain.
- Floodway reconfiguration, if possible, in instances where the flood elevation would be increased.

By performing the actions above, RTC and/or NDOT will seek to avoid any net increase to the 100-year flood water surface elevation. In instances where the flood elevations will increase, a LOMR will be completed and mitigation measures included in the design to protect affected properties.

Consistent with 23 CFR 650 Subpart A and FHWA regulation, RTC, working with FHWA and NDOT, will continue to coordinate with Washoe County, the Cities of Sparks and Reno, FEMA, and the USACE as necessary to identify and include appropriate mitigation measures in the final design of the project. Because of the anticipated placement of earthen fill, construction of retaining walls, and placement of culverts within floodplains, a Conditional Letter of Map Revision and Letter of Map Revision will be required from FEMA prior to construction of any of the build alternatives.

Through adherence to these mitigation measures, the Lead Agencies will comply with EO 11988, 23 CFR 650 Subpart A, FHWA and FEMA.

3.13 VEGETATION AND NOXIOUS WEEDS

This section describes the existing vegetation communities and noxious weeds within the Study Area, and potential impacts resulting from the build alternatives.

3.13.1 Methods

The Study team identified the existing conditions within the Study Area with regard to vegetation communities and noxious weeds from the following data sources:

- Southwest Regional Gap Analysis Project (SWReGAP).
- NatureServe Explorer.
- Natural Resources Conservation Service: Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296.
- U.S Fish and Wildlife Service: Ecoregions of Nevada. U.S. Fish and Wildlife Service.
- Nevada Natural Heritage Program. Noxious Weed Location Map received January 21, 2009.
- Nevada Department of Agriculture's Noxious Weed List.
- BLM Noxious Weeds & Invasive Species website.
- Truckee Meadows Weed Coordinating Group. <http://www.washoeweeds.org/>.
- Pedestrian survey conducted in September 2010 and fall 2011.

Acreage of vegetation impacts, as mapped using SWReGAP data, was calculated using GIS analysis of the alternatives, including the project imprint for permanent impacts, and the construction disturbance footprint for temporary impacts. SWReGAP data is created on a large scale using photo interpretation and large minimum mapping units and, therefore, cannot be extrapolated to accurately represent smaller-scale areas. SWReGAP habitats, boundaries, and acreages should, therefore, be interpreted as general representations of the overall landscape. Because of a high rate of recent development in the region, areas that were categorized in the SWReGAP data as a particular ecological unit might currently be a paved road or a housing or commercial development. The descriptions and acreages provided in Section 3.13.2 *Vegetation Existing Conditions* do not necessarily represent current conditions in the Study Area, but are intended to assist in comparisons among alternatives.

3.13.2 Existing Conditions

This section describes the existing vegetation communities and noxious weeds in the Study Area. For the purposes of this analysis, key habitats, not ecological units, were used to analyze vegetation communities and noxious weeds in the Study Area. Key



habitats in the Study Area, which are made up of several ecological units, are detailed and listed in order of dominance in Table 3-36. Figure 3-45 is a visual representation of the ecological units mapped in the Study Area.

3.13.2.1 Vegetation Communities

Sagebrush habitat is the dominant land cover type, making up more than 82 percent of available habitat in the Study Area. Sagebrush habitat is characterized by multiple sagebrush species (*Artemisia sp.*), particularly big sagebrush (*Artemisia tridentata*) and rabbitbrush (*Chrysothamnus viscidiflorus*). The quality and makeup of the Sagebrush habitat varies significantly throughout the Study Area, ranging from dense shrubland to sparsely vegetated non-native grasslands. Field observations indicated that most of the habitat has been invaded by cheatgrass (*Bromus tectorum*), a non-native invasive grass that dominates the understory and alters available habitat. Cheatgrass-infested areas are a lower quality habitat for all wildlife species and are at high risk for fire, further damaging the ecological community. Sagebrush habitat is further degraded by the presence of multiple access roads bisecting the habitat and encroaching development. Overall, because of its disturbed nature, the Sagebrush habitat provides a low ecological value to the Study Area.

3.13.2.2 Noxious Weeds

Noxious weeds reported in the vicinity of the Study Area include perennial pepperweed (*Lepidium latifolium*), musk thistle (*Carduus nutans*), puncture vine (*Tribulus terrestris*), hoary cress (*Cardaria draba*), saltcedar (*Tamarix ramosissimum*), yellow starthistle (*Centaurea solstitialis*), purple loosestrife (*Lythrum salicaria*), and poison hemlock (*Conium maculatum*) (NNHP, 2009).

Nevada noxious weeds are plant species that have been identified to be harmful to agriculture, the general public, or the environment.

In addition to officially listed noxious weeds, cheatgrass, as described above, is a dominant invasive species in the Study Area. Other noxious weeds that have the likelihood to occur in the Study Area include Canada thistle (*Cirsium arvense*), dalmatian toadflax (*Linaria dalmatica*), medusahead (*Taeniatherum caput-medusae*), Russian knapweed (*Acroptilon repens*), Scotch thistle (*Onopordum acanthium*), and spotted knapweed (*Centaurea virgata*). Because of the disturbed nature of the Study Area, there is a high potential for the presence of noxious weeds and invasive plant species.

Table 3-36. SWReGap Key Habitats and Ecological Units Mapped in the Study Area

Key Habitat	Ecological Unit	Description*	Acres within Study Area†	% of Study Area
Sagebrush (1344 ac)	Great Basin Xeric Mixed Sagebrush Shrubland†	This ecological system occurs on dry flats and plains, alluvial fans, rolling hills, rocky hillslopes, saddles and ridges at elevations between 1000 and 2600 m. Shrublands are dominated by sagebrush species. The herbaceous layer is likely sparse and composed of perennial bunch grasses.	5†	<1%†
	Inter-Mountain Basins Big Sagebrush Shrubland	These shrublands are dominated by sagebrush species. Scattered juniper, greasewood, and saltbush species may be present in some stands. Perennial herbaceous components typically contribute less than 25% vegetative cover. Some semi-natural communities are included that often originate on abandoned agricultural land or on other disturbed sites. In these locations, cheatgrass or other annual bromes and invasive weeds can be abundant.	1,335	82%
	Inter-Mountain Basins Montane Sagebrush Steppe†	This system primarily occurs on deep-soiled to stony flats, ridges, nearly flat ridgetops, and mountain slopes. It is composed primarily of sagebrush. Bitterbrush may codominate or even dominate some stands. Most stands have an abundant perennial herbaceous layer.	4†	<1%†
Developed Landscapes (102 ac)	Developed, Medium—High Intensity	Includes areas containing impervious surfaces from 50-100 percent of the total cover. These areas include single-family housing units, apartment complexes, row houses and commercial/industrial uses.	24	1%
	Developed, Open Space—Low Intensity	Includes areas with a mixture of construction materials and vegetation with impervious areas ranging from less than 20 percent to 49 percent of total cover. These areas most commonly include large-lot single-family housing units, parks, golf courses, vegetation planted in developed settings, or single-family housing units.	78	5%
Intermountain Scrub (80 ac)	Inter-Mountain Basins Semi-Desert Shrub Steppe†	This ecological system occurs typically at lower elevations on alluvial fans and flats with moderate to deep soils. This semi-arid shrub-steppe is typically dominated by grasses (>25% cover) with an open shrub to moderately dense woody layer with a typically strong grass layer.	2†	<1%†
	Inter-Mountain Basins Mixed Salt Desert Scrub	This extensive ecological system includes open-canopied shrublands of typically saline basins, alluvial slopes and plains across the Intermountain western U.S. The vegetation is characterized by a typically open to moderately dense shrubland composed of one or more	78	5%



Table 3-36. SWReGap Key Habitats and Ecological Units Mapped in the Study Area

Key Habitat	Ecological Unit	Description*	Acres within Study Area†	% of Study Area
		saltbush species. Other shrubs present to codominant may include sagebrush, rabbitbrush, and jointfir.		
	Inter-Mountain Basins Greasewood Flat†	This ecological system typically occurs near drainages on stream terraces and flats or may form rings around more sparsely vegetated playas. This system usually occurs as a mosaic of multiple communities, with open to moderately dense shrublands dominated or codominated by greasewood.	<1†	<1%†
Agriculture (37 ac)	Agriculture	Areas containing at least twenty percent of pasture/hay or cultivated crops. Includes grasses, legumes, or areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards.	37	2%
Cliffs & Canyons (31 ac)	Sierra Nevada Cliff and Canyon	Barren and sparsely vegetated areas (<10% plant cover) of steep cliff faces, narrow canyons, and smaller rock outcrops of various igneous, sedimentary, and metamorphic bedrock. This system also includes unstable scree and talus slopes typically occurring below cliff faces. Scattered vegetation may include firs, pines, junipers, and manzanitas. Soil development is limited as is herbaceous cover.	31	2%
Intermountain Conifer Forest & Woodland (22 ac)	Rocky Mountain Montane Dry-Mesic Mixed Conifer Forest and Woodland	This is a highly variable ecological system of the montane zone of the Rocky Mountains. These are mixed-conifer forests occurring on all aspects at elevations ranging from 1200 to 3300 m. Doug fir and white fir are most frequent, but pines may be present to codominant.	21	1%
	Rocky Mountain Montane Mesic Mixed Conifer Forest and Woodland†	Mixed conifer forests occurring predominantly in cool ravines and on north-facing slopes. Douglas fir and white fir are most common canopy dominants.	1†	<1%†

Table 3-36. SWReGap Key Habitats and Ecological Units Mapped in the Study Area

Key Habitat	Ecological Unit	Description*	Acres within Study Area†	% of Study Area
Lower Montane Woodland (10 ac)	Great Basin Pinyon-Juniper Woodland	These woodlands occur on warm, dry sites on mountain slopes, mesas, plateaus and ridges. Woodlands dominated by a mix of pines and junipers, pure or nearly pure occurrences of pinyon pine, or woodlands dominated solely by Utah juniper comprise this system. Understory layers are variable.	10	<1%†
Invasive Grassland and Forblands (7 ac)	Invasive Annual and Biennial Forbland	Forblands dominated by Russian thistle, burningbush, and/or saltlover.	5†	<1%†
	Invasive Annual Grassland	Grasslands dominated by oat grasses, bromes and Mediterranean grass.	2†	<1%†
Intermountain Rivers Stream† (<1 ac)	Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland†	This system often occurs as a mosaic of multiple communities that are tree-dominated with a diverse shrub component. These are disturbance-driven systems that require flooding, scour and deposition for germination and maintenance.	<1†	<1%†

Source: Nature Serve, 2011.

* Descriptions provided by NatureServe (2011) to provide the general characteristics of the unit.

† Due to the generalized nature of the SWReGAP data, ecological units with low amounts of acreage mapped in the Study Area may not actually occur on the ground. Ecological units mapped with low acres of habitat in the Study Area (e.g., making up less than 1%) should be considered as *potentially occurring* only and should not be assumed to reflect on the ground conditions. Eight out of the 16 mapped ecological units make up less than 1% of the Study Area.



1

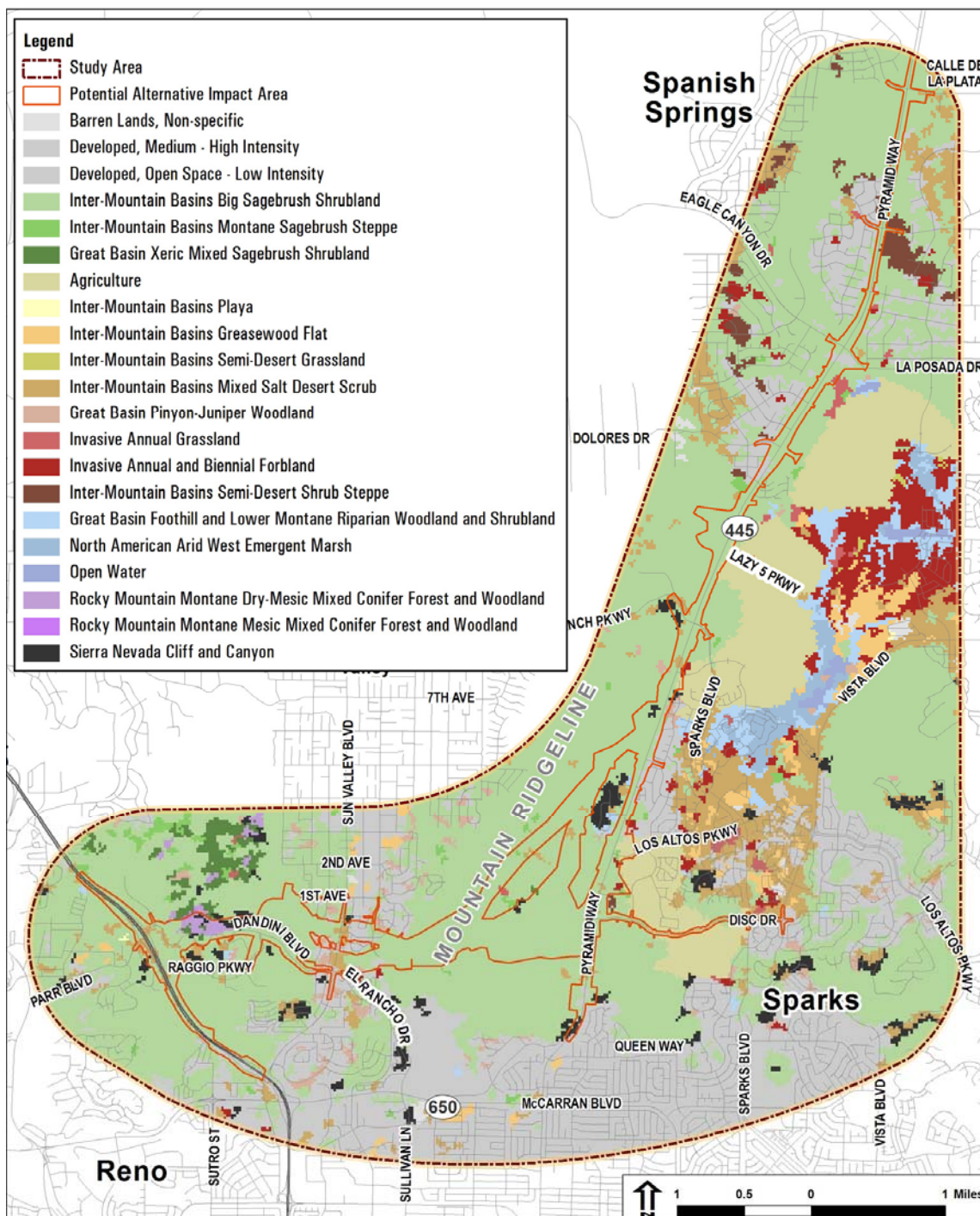


Figure 3-45. Ecological Units Mapped in the Study Area (SWReGAP)

2

3

3.13.3 Vegetation and Noxious Weeds Impacts

Direct impacts to vegetation communities, and, thereby, key habitat, would result from the conversion of existing habitat to transportation uses. Permanent impacts generally include vegetation that would be destroyed due to roadway construction and widening, and the construction of Park and Rides. Temporary impacts occur from the short-term disturbance necessary for construction access. Indirect impacts may result from the introduction or spread of noxious weeds and non-native invasive species. Weeds can easily spread due to construction activities that disturb soil. Typically, weeds thrive in disturbed soils and outcompete native species for nutrients, space, and sunlight.

3.13.3.1 No-Action Alternative

The No-Action Alternative would result in no impacts to vegetation and natural communities.

3.13.3.2 Build Alternatives

All build alternatives cross undeveloped BLM land, where most vegetation impacts would occur. Therefore, there is little difference in total impacts among alternatives.

Impacts Common to All Build Alternatives

All build alternatives would permanently impact 365 acres of existing vegetation and temporarily impact 341 acres. Impacts associated with all build alternatives include permanent vegetation removal in the following key habitats: Agriculture, Cliffs and Canyons, Developed Landscapes, Intermountain Conifer Forest & Woodlands, Intermountain Scrub, Invasive Grasslands & Forblands, Lower Montane Woodland, and Sagebrush.

Direct Impacts would result from cut and fill of the new roadways, expansion of the existing roadways, and the addition of any project components requiring ground disturbance. Indirect impacts may include the introduction or spread of invasive weed species after disturbance of the soil from grading and vegetation removal.

Although relatively similar, each alternative would have a slightly different impact on the key habitats.

Alternative 1. In addition to the acres of impact that are common to all build alternatives, Alternative 1 would permanently impact 379 acres and temporarily 358 acres of vegetation. Alternative 1 and Alternative 3 have a greater potential to spread noxious weeds since these alternatives impact the most undeveloped land.

Alternative 2. In addition to the acres of impact that are common to all build alternatives, Alternative 2 would permanently impact 382 acres and temporarily 358 acres of vegetation.



Alternative 3. In addition to the acres of impact that are common to all build alternatives, Alternative 3 would permanently impact 374 acres and temporarily 401 acres of vegetation. Alternative 3 has the most temporary impacts, caused by the larger construction footprint in the vicinity of the US 395 Connector and Disc Drive. Alternative 3 and Alternative 1 have a greater potential to spread noxious weeds since these alternatives impact the most undeveloped land.

Alternative 4. In addition to the acres of impact that are common to all build alternatives, Alternative 4 would permanently impact 374 acres and temporarily 346 acres of vegetation.

Vegetation Impacts Summary

Impacts to vegetation communities and, thereby, key habitat, resulting from the construction of build alternatives are summarized in Table 3-37. Sagebrush, the dominant vegetation type in the Study Area would bear 79 to 81 percent of all vegetation impacts.

Table 3-37. Key Habitat Impacts (acres)

Key Habitat	Common to All Build Alternatives		Alternative							
	Temp	Perm	1		2		3		4	
			Temp	Perm	Temp	Perm	Temp	Perm	Temp	Perm
Agriculture	3	13	3	13	5	16	3	13	4	16
Cliff and Canyon	7	7	9	6	10	6	7	6	8	6
Developed Landscapes	12	27	13	31	15	37	12	27	15	32
Intermountain Conifer Forest & Woodland	13	5	14	5	15	5	13	5	13	5
Intermountain Scrub	14	31	15	34	15	36	14	31	14	32
Invasive Grasslands & Forblands	<1	<1	<0.2	<0.01	<0.5	<0.5	<0.5	<0.01	<0.5	<0.5
Lower Montane Woodland	1	1	1	<0.3	3	1	2	<1	1	<0.5
Sagebrush	291	281	303	290	295	281	350	292	291	283
Subtotal	341	365	358	379	358	382	401	374	346	374
Total			699	744	699	747	742	739	687	739

3.13.4 Vegetation and Noxious Weeds Mitigation

RTC and/or NDOT will implement a series of measures to avoid, minimize, and mitigate impacts to vegetation from the build alternatives. The measures listed below

are in addition to those identified in Section 3.10 *Water Resources and Water Quality*. Specifically, RTC and/or NDOT will:

- Minimize the amount of disturbance and limit the amount of time that disturbed areas are allowed to remain non-vegetated.
- Employ NDOT BMPs and revegetation guidelines to minimize habitat impacts associated with vegetation removal.
- Implement an Integrated Weed Management Plan for the project.
- Avoid disturbance to existing trees, shrubs and vegetation, to the maximum extent possible.
- Revegetate all disturbed areas with native grass and forb species. Seed, mulch and mulch tackifier will be applied in phases throughout construction.
- Use erosion control blankets, where feasible, on steep, newly seeded slopes to control erosion and to promote the establishment of vegetation. Slopes should be roughened at all times and concrete washout contained.
- Limit work areas as much as possible to minimize construction impacts to vegetation.
- Include non-structural BMPs when possible, such as litter and debris control, and landscaping and vegetative practices.

3.14 WILDLIFE

This section describes wildlife resources, including both terrestrial and aquatic species, located in the Study Area.

3.14.1 Methods

The following methods were used to quantify the existing conditions within the Study Area, and to assess the potential wildlife impacts of each alternative.

The Study team initially identified wildlife resources through field reconnaissance and coordination with the USFWS, Nevada Department of Wildlife (NDOW), and BLM biological resource specialists. Information gathered during this coordination and field reconnaissance included identification of known or historical occurrences, habitat, and areas of known animal movement corridors. GIS layers for known species occurrences were gathered from agencies (NDOW, 2011) to use in impact and environmental conditions analysis. Agency personnel were interviewed to determine known existing or historical occurrences of target species, and known migration or travel corridors.



3.14.2 Existing Conditions

The Study Area is located within the Carson Basin and western mountain areas in Washoe County outside of Reno, Nevada, which is made up of semi desert habitat that ranges in elevation from 3,900 to 6,550 feet. Sagebrush habitat is the dominant habitat type, comprising more than 82 percent of the Study Area. This habitat is characterized by multiple sagebrush species (*Artemisia sp.*), particularly big sagebrush (*Artemisia tridentata*) and rabbitbrush (*Chrysothamnus viscidiflorus*) that are found throughout the Study Area on slopes and in basins on public and private lands.

Wildlife habitat within the Study Area has been heavily fragmented by the Pyramid Highway corridor, as well as commercial and residential developments.

As discussed in Section 3.13 *Vegetation and Noxious Weeds*, the quality and makeup of the sagebrush habitat within the Study Area varies significantly from dense shrubland to sparsely vegetated non-native grassland dominated areas. Also, most of the habitat is highly disturbed and invaded by cheatgrass (*Bromus tectorum*) – a non-native invasive grass that takes over the understory and significantly alters the available habitat. Cheatgrass-infested areas provide lower quality habitat for all wildlife species and are at high risk for fire, which further degrades the ecological community.

The Study Area is bisected by Pyramid Highway, and available habitat has been heavily fragmented by this transportation corridor, as well as commercial and residential developments, primarily in the northern and southeastern portion of the Study Area. In general, the Study Area provides suitable habitat for common wildlife species, mainly in and around Wedekind and Lazy 5 Regional Park and outside existing residential/commercial developments. In addition, there are two large undeveloped parcels in the Study Area that are owned and managed by BLM. These parcels are located west of Pyramid Highway (north of McCarran Boulevard) and east of the Sun Valley Community. These parcels are managed for multiple use, which includes recreation (i.e., hiking and mountain biking), with numerous trails located throughout. Habitat located on BLM land within the Study Area is subject to disturbance from off-road vehicle use.

3.14.2.1 General Wildlife

General wildlife species found in the Study Area are common wildlife species that have adapted to living in suburban and urban areas throughout the region. The Study Team conducted a field survey of the Study Area and general wildlife assessment in September 2010. Potential wildlife occurring within the Study Area includes mule deer (*Odocoileus hemionus*), antelope (*Antilocapra americana*) coyote (*Canis latrans*), raccoon (*Procyon lotor*), jackrabbit (*Lepus spp.*), cottontail (*Sylvilagus audubonii*), mourning dove (*Zenaidura macroura*), and various song birds. In addition, two common species of raptors were observed soaring overhead in the Study Area – red-tailed (*Buteo jamaicensis*) and

swainson's hawk (*Buteo swainsoni*). Beaver (*Castor canadensis*) and muskrat (*Ondatra zibethicus*) have the potential to occur within the Orr Ditch and North Truckee Drain.

The Study team completed an on-site nest survey during the 2010 site visit to identify the presence of any migratory bird or raptor nest locations in the Study Area. Several areas of suitable nesting habitat were observed, however, no nests were identified during the survey. In addition, NDOW has no record of raptor nests within the Study Area (NDOW, 2011).

3.14.2.2 Big Game

Two big game species, mule deer and pronghorn, use available habitat in the Study Area throughout the year. Mule deer, the primary big game species in Nevada, occupies suitable habitat throughout the Study Area. However, habitat in the Study Area is bisected by Pyramid Highway and has been heavily impacted by residential and commercial developments, which has contributed to habitat loss and fragmentation.

According to the NDOW, there is pronghorn antelope distribution in the northern portion of the Study Area, though suitable habitat has also been heavily impacted and fragmented. There are no known bighorn sheep or elk distributions or big game migration or travel corridors in the Study Area (NDOW, 2011).

3.14.2.3 Greater Sage-Grouse

The sage grouse (*Centrocercus urophasianus*) is a large chicken-like bird that is dependent upon sagebrush grassland habitats throughout western North America. Evidence suggests that habitat fragmentation and destruction across much of the species' range has contributed to significant population declines over the past century. While habitat in the vicinity of the Study Area may have historically supported sage grouse, there are no known greater sage-grouse distributions or leks (communal breeding grounds) in the Study Area (NDOW, 2011).

3.14.2.4 Reptiles and Amphibians

A variety of common reptile species occupy suitable habitat in the Study Area. These species include desert horned lizard (*Phrynosoma platyrhinos platyrhinos*), western fence lizard (*Sceloporus occidentalis*), Great Basin rattlesnake (*Crotalus viridis lutosus*), zebra-tailed lizard (*Callisaurus draconoides*), and Great Basin gopher snake (*Pituophis catenifer deserticola*).

There is limited habitat available for amphibian species within the Study Area. Potential common amphibian species that may be found in the Study Area include: the nonnative bullfrog (*Rana catesbeiana*) and the Pacific chorus frog (*Hyla regilla*).



3.14.2.5 Aquatic Resources

Major drainage features in the Study Area include ephemeral/intermittent drainages and irrigation canals (Orr Ditch and the North Truckee Drain). There are no perennial stream features in the Study Area or large bodies of water, which limit the presence of aquatic species.

3.14.3 Wildlife Impacts

Given the scale of the project and the size of the Study Area, impacts were qualified and estimated on a broad scale using data from a variety of sources, including the USFWS and NDOW. Direct impacts to wildlife were quantified by measuring acres of habitat within the project limits of disturbance using GIS overlays. These overlays included both the project footprint and construction disturbance footprint.

Acreage of vegetation impacts, as mapped using the SWReGAP data, was calculated using GIS analysis of the alternatives, including the project footprint and construction disturbance. SWReGAP data is created on a large scale using photo interpretation and large minimum mapping units and, therefore, cannot be extrapolated to accurately represent smaller-scale areas. SWReGAP habitats, boundaries, and acreages should, therefore, be interpreted as general representations of the overall landscape. Because of a high rate of recent development in the region, areas that were categorized in the SWReGAP data as a particular ecological unit might currently be a paved road or a housing or commercial development.

Effects to wildlife were identified based on the potential for disruption and loss of existing habitats and movement corridors due to construction of the build alternatives. Short-term direct effects include temporary habitat loss, construction noise disturbance, and restrictions on wildlife movement. Long-term direct effects generally include habitat fragmentation, road mortality, and permanent loss of habitat. Indirect impacts to wildlife include bisecting a potential wildlife corridor, which may cause an increase in animal vehicle collisions or interruptions of migration patterns. In addition, indirect effects could be caused by the introduction and spread of noxious or invasive weed species, which degrades wildlife habitat.

3.14.3.1 No-Action Alternative

Under the No-Action Alternative, no additional impacts to wildlife and aquatic resources from a highway construction project would be expected. Impacts to wildlife that occur in the Study Area would remain the same as the existing condition, although increasing development in the Study Area would continue to put pressure on wildlife and wildlife habitat.

3.14.3.2 Build Alternatives

Impacts Common to All Alternatives

Transportation improvements would impact wildlife foraging and nesting habitat, and approximately 366 acres of habitat would be converted to impervious surface under all build alternatives. These impacts are listed in Table 3-38. Impacts associated with all build alternatives include permanent removal of vegetation in the following habitat types: Agriculture, Cliffs and Canyons, Developed Landscapes, Intermountain Conifer Forest & Woodlands, Intermountain Scrub, Invasive Grasslands & Forblands, Lower Montane Woodland, and Sagebrush.

Table 3-38. Impacts Common to All Build Alternatives

Habitat	Permanent Impacts (Acres)
Agriculture	13
Cliff and Canyon	7
Developed Landscapes	27
Intermountain Conifer Forest & Woodland	5
Intermountain Scrub	31
Invasive Grasslands & Forblands	<1
Lower Montane Woodland	1
Sagebrush	281
Total	366

With the exception of BLM lands located between Sparks and Sun Valley where the US 395 Connector would be aligned, the majority of habitat that would be converted for transportation use has been degraded because of its roadside location and surrounding development. In addition, sagebrush habitat within the Study Area is dominated by an understory of non-native cheatgrass, which lowers the value of sagebrush habitat.

The direct disturbance of wildlife habitat would reduce habitat availability for a variety of common small mammals, birds, and their predators. However, these impacts are considered moderate based on the current level of development and habitat fragmentation near Pyramid Highway.

The direct disturbance of wildlife habitat from the build alternatives may result in some direct mortality to small mammals, birds, and their predators and the displacement of songbirds from construction areas. Construction activities would temporarily affect wildlife resources due to disturbance from construction noise and increased human presence. No direct permanent impacts to big game (mule deer or antelope) migration corridors would result from the construction of the build alternatives.

Construction of the build alternatives would increase impervious surfaces, thereby increasing runoff and exposing the surrounding habitat to higher levels of pollutants. Soil disturbance from construction equipment would also create favorable conditions for noxious weeds to introduce and establish, or to further spread.



There are no anticipated impacts to aquatic resources from the construction of the build alternatives due to lack of suitable habitat (perennial streams or water bodies) within the construction footprint.

Alternative 1

Alternative 1 would be located just below the ridgeline separating Sun Valley and Spanish Springs west of the existing Pyramid Highway. It would use BLM lands that are currently managed for open space and recreation use.

The direct disturbance of wildlife habitat between the US 395 Connector and Highland Ranch Parkway would reduce habitat availability for a variety of common small mammals, reptiles, and birds, and their predators. In addition, disturbance/displacement, movement barrier, and potential mortality impacts to wildlife would increase with Alternative 1 because of a new roadway alignment that would bisect BLM land that is currently managed for recreation and open space.

Overall, Alternative 1 would result in the conversion of approximately 359 acres of habitat to transportation use. In addition to the impacts common to all build alternatives, Alternative 1 would result in an additional permanent impact of 4 acres to developed landscapes, 9 acres to sagebrush, and 2 acres to intermountain scrub.

Short-term effects to wildlife from Alternative 1 would include temporary loss of habitat to construction areas and increased mortality from construction-related activities. Long-term effects to wildlife from Alternative 1 would include permanent loss of habitat, habitat fragmentation, and potential increased animal-vehicle collisions from new roadway alignments. Most of the impacts would occur along the new US 395 Connector. Construction would include soil fill slopes, roadway pavement, bicycle trail pavement, culverts, and placement of water quality ponds.

Alternative 2

Alternative 2 would be an alignment following the existing Pyramid Highway between the US 395 Connector and Highland Ranch Parkway. The US 395 Connector alignment would follow the south of Rampion Way crossing of Sun Valley and would include an interchange at Sun Valley Boulevard.

In contrast to Alternatives 1 and 3, Alternative 2 would include transportation improvements between Highland Ranch Parkway and the US 395 Connector that follows the existing Pyramid Highway, which reduces the amount of existing open space/BLM land converted to impervious surface between Sun Valley and Sparks. Overall, Alternative 2 would result in the conversion of approximately 357 acres of habitat to transportation use. In addition to the impacts common to all build alternatives, Alternative 2 would result in an additional permanent impact of 3 acres to agriculture, 9 acres to developed landscapes, 1 acre to lower montane woodland, and 4 acres to intermountain scrub.

Short-term effects to wildlife from Alternative 2 would include temporary loss of habitat to construction areas and increased mortality from construction related activities. Long-term effects to wildlife from Alternative 2 would include permanent loss of habitat, habitat fragmentation, and potential increased animal-vehicle collisions from the new US 395 Connector. Construction would include soil fill slopes, roadway pavement, bicycle trail pavement, culverts, and placement of water quality ponds.

Alternative 3

Alternative 3 would be an alignment just west of the existing Pyramid Highway between the US 395 Connector and Highland Ranch Parkway. This alignment would be just below the ridgeline separating Sun Valley and Spanish Springs west of the existing Pyramid Highway and would use BLM lands that are currently managed for open space and recreation use.

Overall, Alternative 3 would result in the conversion of approximately 375 acres of habitat to transportation use. In addition to the impacts common to all build alternatives, Alternative 3 would result in an additional permanent impact of 1 acre to lower montane woodland and 13 acres to sagebrush.

Short-term effects to wildlife from Alternative 3 would include temporary loss of habitat to construction areas and increased mortality from construction-related activities. Long-term effects to wildlife from Alternative 3 would include permanent loss of habitat, habitat fragmentation, and potential increased animal-vehicle collisions from new roadway alignments. The majority of impacts would occur in the vicinity of the new US 395 Connector and a new roadway alignment between the US 395 Connector and Highland Ranch Parkway. Construction would include soil fill slopes, roadway pavement, bicycle trail pavement, culverts, and placement of water quality ponds.

Alternative 4

Alternative 4 would be an alignment following the existing Pyramid Highway between the US 395 Connector and Highland Ranch Parkway. In contrast to Alternatives 1 and 3, Alternative 4 includes transportation improvements between Highland Ranch Parkway and the US 395 Connector that follows the existing Pyramid Highway, which would reduce the amount of existing open space/BLM property converted to impervious surface between Sun Valley and Sparks.

Overall, Alternative 4 would result in the conversion of approximately 375 acres of habitat to transportation use. In addition to the impacts common to all build alternatives, Alternative 4 would result in an additional permanent impact of 3 acres to agriculture, 5 acres to developed landscapes, 4 acres to sagebrush, and 1 acre to intermountain scrub.

Short-term effects to wildlife from Alternative 4 would include temporary loss of habitat to construction areas and increased mortality from construction-related activities. Long-



term effects to wildlife from Alternative 4 would include permanent loss of habitat, habitat fragmentation, and potential increased animal-vehicle collisions from the new US 395 Connector. Construction would include soil fill slopes, roadway pavement, bicycle trail pavement, culverts, and placement of water quality ponds.

Wildlife Resources Impact Summary

Impacts to habitat types resulting from construction of the build alternatives are summarized in Table 3-39.

Alternatives 1 and 3 would be located just below the ridgeline of the mountains and west of the existing Pyramid Highway. While the amount of habitat converted to impervious surface is slightly less than Alternatives 2 and 4, these alignments would bisect and further fragment existing habitat that is currently managed for open space and recreation use west of Pyramid Highway between Sun Valley and Sparks.

Alternatives 2 and 4 would include a new freeway alignment between Highland Ranch Parkway and US 395 that more closely follows the existing Pyramid Highway, which would reduce the amount of existing open space/BLM land converted to impervious surface on the west side of Pyramid Highway between Sun Valley and Sparks. The majority of wildlife impacts and habitat conversion for Alternatives 2 and 4 would be associated with the new US 395 Connector, which would still convert mostly public lands that are currently managed for open space and recreation into transportation use. Construction of the US 395 Connector for Alternatives 2 and 4 would further fragment available wildlife habitat and bisect relatively large tracks of open space between Disc Drive and Sun Valley, but leave existing habitat relatively intact west of Pyramid Highway.

Table 3-39. Direct Temporary and Permanent Impacts to Habitat by Build Alternative in Acres

Habitat	Alternatives							
	1		2		3		4	
	Temp	Perm	Temp	Perm	Temp	Perm	Temp	Perm
Agriculture	3	13	5	16	3	13	4	16
Cliff and Canyon	9	6	10	6	7	6	8	6
Developed Landscapes	13	31	15	37	12	27	15	32
Intermountain Conifer Forest & Woodland	14	5	15	5	13	5	13	5
Intermountain Scrub	15	34	15	36	14	31	14	32
Invasive Grasslands & Forblands	<0.2	<0.01	<0.5	<0.5	<0.5	<0.01	<0.5	<0.5
Lower Montane Woodland	1	<0.3	3	1	2	<1	1	<0.5
Sagebrush	303	290	295	281	350	292	291	283
Total	359	380	357	382	401	375	347	375

3.14.4 Wildlife Mitigation

RTC and/or NDOT will follow appropriate BMPs to prevent and minimize temporary impacts to vegetation and wildlife during construction. These BMPs could include:

- Employ NDOT BMPs and revegetation guidelines to minimize habitat impacts associated with vegetation removal.
- Implement an Integrated Weed Management Plan for the project.
- Avoid disturbance to existing trees, shrubs and vegetation, to the maximum extent possible.
- To avoid impacts to nesting birds in accordance with the MBTA, if construction is to commence between April 1 and August 31, a qualified biologist will conduct a nest survey prior to construction. If active nests are found, coordination with NDOW and USFWS is required to determine an appropriate course of action, which may include, but is not limited to, a delay in construction to avoid the breeding season.
- Protect wetland areas not temporarily impacted by the project from construction activities by temporary and/or construction limit fencing.
- Evaluate opportunities to incorporate specific measures to enhance wildlife connectivity as needed during final design.
- Revegetate all disturbed areas with native grass and forb species. Seed, mulch, and mulch tackifier will be applied in phases throughout construction.
- Develop a stormwater management plan with BMPs to minimize adverse effects to water quality.
- Use erosion logs, silt fence, or other sediment control devices as sediment barriers and filters adjacent to wetlands, surface waterways, and at inlets where appropriate.
- Use erosion control blankets, where feasible, on steep, newly seeded slopes to control erosion and to promote the establishment of vegetation. Slopes should be roughened at all times and concrete washout contained.
- Limit work areas as much as possible to minimize construction impacts to vegetation.

3.15 SPECIAL-STATUS SPECIES

This section describes the special-status species, their associated habitat located within the Study Area, and potential impacts resulting from the build alternatives.

The primary federal law protecting threatened and endangered species is the Federal Endangered Species

Special-status species include federal threatened and endangered species, BLM sensitive species, and state listed species.



Act (FESA): 16 USC Section 1531, et seq. See also 50 CFR Part 402. This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration (FHWA), are required to consult with the USFWS to ensure that they are not undertaking, funding, permitting or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. Section 3 of FESA defines take as, “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct.”

The Study Area is partially located on land owned and managed by the BLM. The BLM is tasked to conserve and/or recover FESA-listed species and the ecosystems on which they depend so that FESA protections are no longer needed for these species; and to initiate proactive conservation measures that reduce or eliminate threats to BLM sensitive species to minimize the likelihood of and need for listing of these species under the FESA (BLM Manual 6840).

State listed Rare or Sensitive Species are species the NDOW and the Nevada Department of Conservation and Natural Resources’ Nevada Natural Heritage Program (NNHP) considers threatened or endangered within the state of Nevada. These species are also included in this analysis.

3.15.1 Methods

The Study team identified existing conditions in the Study Area with regard to special-status species from the following data sources and agencies:

- USFWS
- FESA
- NDOW
- NNHP
- BLM
- SWReGAP

SWReGAP data, which is described in detail in Section 3.13 *Vegetation and Noxious Weeds*, is created on a large scale using photo interpretation and large minimum mapping units and, therefore, cannot be extrapolated to accurately represent smaller-scale areas. SWReGAP habitats, boundaries, and acreages should, therefore, be interpreted as general representations of the overall landscape. Because of a high rate of recent development in the region, areas that were categorized in the SWReGAP data as a particular ecological unit might currently be a paved road or a housing or commercial development. Therefore, the descriptions and acreages provided in Section 3.13

Vegetation and Noxious Weeds do not necessarily represent current conditions in the Study Area, but are intended to assist in comparisons between alternatives.

Given the scale of the project, and the size of the Study Area, impacts were estimated on a broad scale using data from a variety of sources, including the USFWS, NDOW, and SWReGAP. Direct impacts to sensitive species or their habitat were quantified, where possible, by measuring acres of habitat within the project limits of disturbance using GIS overlays, including both the project footprint for permanent impacts, and the construction disturbance footprint for temporary impacts.

3.15.2 Existing Conditions

Per the SWReGAP data, and confirmed during field surveys, Sagebrush is the predominant key habitat in the Study Area. It is made up of the following ecological systems:

- Inter-Mountain Basins Big Sagebrush Shrubland
- Great Basin Xeric Mixed Sagebrush Shrubland
- Inter-Mountain Basins Montane Sagebrush Steppe

These ecological systems have the potential to support several special-status species. However, within the Study Area, the Sagebrush habitat is dominated by an understory of non-native cheatgrass (*Bromus tectorum*), lowering the species diversity and value of the Sagebrush habitat. Also, the habitat within the Study Area is both surrounded and fragmented by residential and commercial development and transportation infrastructure, including off-road vehicle use on existing undeveloped BLM land. This fragmentation decreases the value of the habitat as a migration corridor. Overall, the Sagebrush habitat within the Study Area is highly disturbed by non-native species, development, and recreational vehicles. As a result, Sagebrush, the dominant key habitat, is considered to have low ecological quality.

3.15.2.1 Federally Listed Species

Appendix A *Agency Coordination* contains the informal consultation that was conducted with the USFWS on November 3, 2008, and October 4, 2011, via written and e-mail correspondence. Based on written correspondence dated November 18, 2008, and updated October 2, 2011, the USFWS was concerned about the potential that one federally listed species occurs in the Study Area – the Carson wandering skipper (*Pseudocopaeodes eunus obscurus*), a federally endangered butterfly, as listed in Table 3-40.



Table 3-40. Federally Listed Species with Potential to Occur in the Study Area

Scientific Name	Common Name	Status (Federal)	General Habitat Requirements	Potential to Occur
<i>Pseudocopaeodes eunus obscurus</i>	Carson wandering skipper	Federally endangered	The larval host plant is salt grass. Needs open areas near springs or water. Found in grasslands on alkaline substrates in Washoe County	No potential to occur. Suitable habitat is not present in the Study Area.

Carson Wandering Skipper

The Carson wandering skipper (CWS) is a small butterfly in the Hesperinae subfamily. It was listed as endangered on November 29, 2001. There are currently four known extant populations spanning California and western Nevada. CWS habitat is characterized by the presence of saltgrass (*Distichlis spicata*) located near water sources, with blooming nectar plants in June and July. Reasons for species population decline include loss of habitat, invasion of non-native plant species, human collection, and reduction of wet habitat due to increasing human water demands.

The Study Area was surveyed in September 2010 for the presence of potential CWS habitat (i.e., saltgrass). One patch of saltgrass was identified in the Study Area, located southeast of the US 395/Dandini Boulevard interchange. The saltgrass patch is small, approximately 575 square feet (0.01 acre) and is located along an intermittent drainage. Nectar plants were identified adjacent to the saltgrass patch, including rabbitbrush, gumplant, yellow star-thistle, and milkweed. However, the dominant surrounding vegetation was cheatgrass. Consultation with the USFWS confirmed that because of the small size of the patch, this area is not considered to be suitable habitat for the CWS. As a result, there is no federally endangered or threatened species habitat located in the Study Area.

3.15.2.2 State Listed and Nevada Natural Heritage Sensitive Species

Consultation was conducted with NNHP on January 21, 2009. Based on consultation and analysis of species habitat requirements, six species designated as special status by the NDOW or the NNHP, have the potential to occur in the Study Area. Table 3-41 describes each special-status species and their likelihood to occur in the Study Area.

3.15.2.3 BLM-Designated Sensitive Species

BLM land in the Study Area is dominated by disturbed Sagebrush and Intermountain Scrub habitat bordered by developed landscapes. Based on coordination with the BLM, the updated 2011 species list provided by the BLM, and analysis of species habitat requirements, 30 species designated as BLM sensitive species have the potential to occur on BLM land in the Study Area. BLM special-status species are both species listed or proposed for listing under the FESA, and species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the FESA. All federal candidate species, proposed species, and

delisted species in the five years following delisting will be conserved as BLM sensitive species (BLM Manual 6840). Table 3-42 describes each BLM-sensitive species and their likelihood to occur on BLM land in the Study Area.

Special-status species that could occur on BLM land in the Study Area are discussed in the following paragraphs.

Plants

Six special-status plant species have the potential to occur on BLM land in the Study Area. They may be found in the following key habitats: Intermountain Scrub, Sagebrush, and Woodlands (mapped as Conifer Forests & Woodlands). According to data from the NNHP, only one special-status plant species has been recorded in the Study Area – the altered-andesite buckwheat, which was identified in the Study Area during field surveys southeast of the US 395/ Dandini Boulevard interchange (NNHP, 2009). This species is a former USFWS species of concern and is now a BLM sensitive species. Surveys were conducted in September to best identify the altered-andesite buckwheat. Although presence of this species was not identified on BLM land, an area approximately 0.24 acre of occupied habitat was discovered and mapped in the Study Area. The five other plant species with potential to occur were not observed during the survey; however, because of their varying blooming times, they cannot be ruled out until a floristic survey is conducted during their respective blooming periods.

Birds

Ten special-status bird species have the potential to occur on BLM land in the Study Area. The bird species may be found in the following key habitats: Intermountain Scrub, Sagebrush, Developed Landscapes, Agricultural Lands, Woodlands (mapped as Intermountain Coniferous Forest & Woodlands or Lower Montane Woodlands), and Rock Outcrops (mapped as Cliffs & Canyons).

Swainson's hawk was observed exhibiting foraging behavior over Sagebrush habitat in the Study Area during field surveys. None of the bird species have been recorded in the Study Area (NNHP, 2009), and none of the other nine were observed in the Study Area during the field surveys. In addition to the bird species listed in the above tables, many bird species are protected under the Migratory Bird Treaty Act (MBTA).



Table 3-41. State or NNHP Special-Status Species

Scientific Name	Common Name	Status: Federal/ State/BLM	Key Habitats in the Study Area	Habitat Requirements	Potential to Occur
Plants					
<i>Astragalus pulsiferae</i> var. <i>pulsiferae</i>	Ames milkvetch	-/CI/BLM	Intermountain Scrub; Intermountain Conifer Forests & Woodlands; Lower Montane Woodland	Great basin scrub, lower montane coniferous forest, pinyon-juniper woodland. Volcanic substrate, sometimes in clay; sandy or rocky soil, often with pines or sagebrush.	Could occur, suitable habitat is available.
<i>Ivesia webberi</i>	Webber's ivesia	C/CE/-	Sagebrush; Intermountain Scrub	Shallow shrink-swell clay soils with a gravelly surface layer over volcanic, generally andesitic bedrock, on mid- elevation benches and flats.	Could occur, suitable andesitic bedrock is present, however it was not observed during September surveys.
<i>Mimulus ovatus</i>	Steamboat monkeyflower	-/CI/-	Sagebrush; Cliffs and Canyon	Dry to somewhat moist, often barren, loose, sandy to gravelly slopes derived from siliceous sinter deposited by Hot springs in the sagebrush zone, or from highly acidic hydrothermally altered andesite or rhyolite deposits, or possibly on sandy alkaline valley floor deposits in the Sagebrush zone, sometimes on adjacent roadsides or washes.	Could occur, suitable andesitic bedrock is present, however species was not observed during September surveys.
<i>Eriogonum robustum</i>	Altered andesite buckwheat	SC/-/BLM/IR	Intermountain Scrub; Sagebrush	Dry, shallow, highly acidic (ph 3.3-5.5) gravelly clay soils mainly of the smallcone series, derived from weathering of hydrothermal sulfide deposits formed in andesite, or sometimes in rhyolitic or granitoid rocks.	Known to occur in Study Area on privately owned land. Identified during September 2010 field surveys. Does not occur on BLM land.
Reptiles					
<i>Actinemys marmorata marmorata</i>	Northwestern pond turtle	-/SC/-	Intermountain Rivers & Streams; Developed Landscapes	A thoroughly aquatic turtle of ponds, marshes, rivers, streams & irrigation ditches, usually with aquatic vegetation.	Unlikely to occur, suitable habitat is sparse and last reported occurrence is historic (1941).

Table 3-41. State or NNHP Special-Status Species

Scientific Name	Common Name	Status: Federal/State/BLM	Key Habitats in the Study Area	Habitat Requirements	Potential to Occur
Mammals					
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	-/NSP/BLM	Lower Montane Woodland	Many types of habitat, but the species is often found near forested areas. Caves, mines, and buildings are used for day roosting and winter hibernation. Consequently, human disturbances of caves and the closures of abandoned mines may constitute threats to the species.	Likely to occur, one reported occurrence is located within the Study Area, however no sign of bats was observed during surveys.

Federal

C = Candidate

FE = Federally Endangered

FT = Federally Threatened

State/NNHP/BLM

BLM = BLM designated Sensitive Species

CE = Critically Endangered Flora Species

CI = Critically Imperiled (NNHP)

IR= Imperiled due to rarity or other demonstrable factors (NNHP)

NSP = Nevada State Protected Species

SC = Species of Concern

Potential for Occurrence Definitions

Unlikely to occur: Potentially suitable habitat present but species unlikely to be present in the Study Area because of the urbanization and developed surrounding the Study Area, the current status of the species, and/or very restricted distribution.

Could occur: Suitable habitat is available in the Study Area; however, there are few or no other indicators that the species might be present.

Likely to occur: Habitat conditions, behavior of the species, known occurrences in the project vicinity, or other factors indicate a relatively high likelihood that the species would occur in the Study Area.

Known to occur: The species, or evidence of its presence, was observed in the Study Area during surveys or was reported by others.



Table 3-42. BLM Sensitive Species

Scientific	Common	Status: Federal/ State/BLM	Key Habitat On BLM Land In the Study Area	Habitat Requirements	Potential to Occur
Plants					
<i>Astragalus convallarius</i> var. <i>margaretiae</i>	Margaret rushy milkvetch	-/-/BLM	Sagebrush	Rocky slopes and flats among sagebrush in the pinyon-juniper and sagebrush zones.	Could occur, suitable habitat is available.
<i>Eriogonum anemophilum</i>	Windloving buckwheat	SC*/-/BLM	Intermountain Scrub; Sagebrush	At high elevations on dry, exposed, relatively barren and undisturbed, gravelly, limestone or volcanic ridges and ridgeline knolls, on outcrops or shallow rocky soils over bedrock. At low elevations on dry, relatively barren and undisturbed knolls and slopes of light-colored, platy volcanic tuff weathered to form stiff clay soils, on all aspects.	Could occur, suitable habitat is available.
<i>Eriogonum robustum</i>	Altered andesite buckwheat	SC*/-/BLM	Intermountain Scrub; Sagebrush	Dry, shallow, highly acidic (ph 3.3-5.5) gravelly clay soils mainly of the smallcone series, derived from weathering of hydrothermal sulfide deposits formed in andesite, or sometimes in rhyolitic or granitoid rocks.	Known to occur in Study Area on privately owned land. Identified during September 2010 Field Surveys. Does not occur on BLM land.
Birds					
<i>Aquila chrysaetos</i>	Golden eagle	-/-/BLM	Sagebrush	Requires a variety of open & semi-open landscapes with sufficient mammalian prey base.	Could occur, suitable habitat is available
<i>Athene cunicularia hypugaea</i>	Western burrowing owl	-/-/BLM	Intermountain Scrub; Sagebrush; Developed Landscapes	Optimum habitat typified by short vegetation and presence of fresh small mammal burrows in open grasslands, sagebrush, and sagebrush-steppe.	Could occur, suitable habitat is available.
<i>Buteo regalis</i>	ferruginous hawk	-/-/BLM	Sagebrush; Intermountain Scrub; Agricultural Lands	Open country, sagebrush, saltbush-greasewood shrubland, periphery of pinon-juniper and other woodland, desert. Nests in juniper trees, tufa stacks, and rock outcrops.	Likely to occur. Suitable foraging habitat is available.
<i>Buteo swainsoni</i>	Swainson's hawk	-/-/BLM	Agricultural Lands	Savanna, open pine-oak woodland and cultivated lands with scattered trees. In migration and winter also in grasslands and other open country.	Known to occur, species observed during fall surveys.
<i>Centrocercus urophasianus</i>	Greater Sage-grouse	C/ game bird/BLM	Sagebrush	Foothills, plains, and mountain slopes where sagebrush is present.	Could occur. Suitable habitat is available, however habitat is highly disturbed.
<i>Falco peregrinus</i>	Peregrine Falcon	-/SE/BLM	Developed Landscapes	Cliffs and canyons, developed landscapes, marshes. Utilizes open environments including	Could occur, suitable habitat is available.

Table 3-42. BLM Sensitive Species

Scientific	Common	Status: Federal/ State/BLM	Key Habitat On BLM Land In the Study Area	Habitat Requirements	Potential to Occur
				steppe, over open water, desert shrub, usually in close association with suitable nesting cliffs.	
<i>Gymnorhinus cyanocephalus</i>	pinyon jay	-/-/BLM	Lower Montane Woodlands	Pinyon-juniper woodland, pine, scrub oak and sagebrush in lower montane woodlands.	Could occur. Suitable habitat is available.
<i>Lanius ludovicianus</i>	Loggerhead shrike	-/SS/BLM	Intermountain Cold Desert Scrub; Sagebrush	Breeds in open country with scattered trees and shrubs, savanna, desert scrub, and open woodland. Requires hunting perches.	Could occur, suitable habitat available.
<i>Oreoscoptes montanus</i>	Sage Thrasher	-/SS/BLM	Intermountain Scrub; Sagebrush	Sagebrush, desert	Likely to occur. Suitable habitat is available, however habitat is highly disturbed.
<i>Spizella breweri</i>	Brewer's Sparrow	-/SS/BLM	Sagebrush; Intermountain Scrub	Areas dominated by shrubs with high cover and large patch size.	Likely to occur. Suitable habitat is available, however habitat is highly disturbed.
Mammals					
<i>Brachylagus idahoensis</i>	pygmy rabbit	-/game/ BLM	Sagebrush	Dense stands of big sagebrush in deep loose soils.	Likely to occur. Suitable habitat is available, however habitat is highly disturbed.
<i>Eptesicus fuscus</i>	big brown bat	-/-/BLM	Agriculture	Caves, farmland, urban, forest	Could occur suitable habitat available.
<i>Euderma maculatum</i>	spotted bat	-/ST/BLM	Developed Landscapes	Cliffs and canyons, subterranean, developed landscapes	Could occur, suitable habitat available.
<i>Myotis californicus</i>	California myotis	-/-/BLM	Developed Landscapes	Desert, canyons, urban	Could occur, suitable habitat available.
<i>Myotis ciliolabrum</i>	western small-footed myotis	-/-/BLM	Agriculture; Sagebrush; Intermountain Scrub	Crevices, mines, hollow trees, and exfoliating bark.	Could occur, suitable habitat available.
<i>Myotis evotis</i>	long-eared myotis	-/-/BLM	Sagebrush	Nursery colonies in building's, crevices, spaces under bark, and snags. Caves used primarily as night roosts.	Could occur, suitable habitat available.
<i>Myotis lucifugus</i>	little brown myotis	-/-/BLM	Developed landscapes	Hollow trees, rock outcrops, buildings, mines & caves.	Could occur, suitable habitat available.
<i>Myotis thysanodes</i>	fringed myotis	-/-/BLM	Developed landscapes	Mines, caves, trees, and buildings.	Could occur, suitable habitat available.
<i>Pipistrellus hesperus</i>	western pipistrelle	-/-/BLM	Intermountain Scrub	Desert, scrubland, caves, mines	Could occur, suitable habitat available.
<i>Antrozous pallidus</i>	pallid bat	-/-/BLM	Intermountain Scrub; Developed Landscapes	Deserts, grasslands, shrublands, woodlands & forests. Most common in open, dry habitats with rocky areas for roosting.	Could occur, suitable habitat available.
<i>Microdipodops megacephalus</i>	dark kangaroo mouse	-/SP/BLM	Intermountain Scrub; Sagebrush	Loose sands and gravel in shadscale scrub, sagebrush scrub, and alkali sink.	Likely to occur, suitable habitat available, however habitat is highly disturbed.



Table 3-42. BLM Sensitive Species

Scientific	Common	Status: Federal/ State/BLM	Key Habitat On BLM Land In the Study Area	Habitat Requirements	Potential to Occur
Invertebrates					
<i>Anthophora sp. nov. 1</i>	bee	-/-/BLM	May occur in any habitat throughout the Study Area.	Make nests in soil, flat ground or banks.	Could occur, species and habitat requirements are very general.
<i>Cardiophorus ssp. nov.</i>	Click beetle	-/CI/BLM	May occur in any habitat throughout the Study Area.	Anywhere there is vegetation and soil. Rare in deserts or flooded areas.	Could occur, habitat requirements are very general.
<i>Euphilotes enoptes primavera</i>	early blue	-/CI/BLM	Intermountain Scrub; Sagebrush	Larval host plant is <i>Eriogonum umbellatum</i>	Could occur, suitable habitat is available.
<i>Hesperapis sp. nov. 2</i>	bee	-/CI/BLM	May occur in any habitat throughout the Study Area.	Unknown	Could occur, species and habitat requirements are very general.
<i>Perdita haigi</i>	bee	-/CI/BLM	May occur in any habitat throughout the Study Area.	Unknown	Could occur, species and habitat requirements are very general.
<i>Perdita sp. nov. 3</i>	bee	-/CI/BLM	May occur in any habitat throughout the Study Area.	Unknown	Could occur, species and habitat requirements are very general.

Federal

C = Candidate

FE = Federally Endangered

FT = Federally Threatened

State/NNHP/BLM

BLM = BLM designated Sensitive Species

CE = Critically Endangered Flora Species

Species

CI = Critically Imperiled (NNHP)

NSP = Nevada State Protected Species

SC* = Species of Concern (USFWS no longer maintains a SC list)

SS = Special-Status

Potential for Occurrence Definitions

Unlikely to occur: Potentially suitable habitat present but species unlikely to be present in the Study Area because of the urbanization and development surrounding the Study Area, the current status of the species, and/or very restricted distribution.

Could occur: Suitable habitat is available in the Study Area; however, there are few or no other indicators that the species might be present.

Likely to occur: Habitat conditions, behavior of the species, known occurrences in the project vicinity, or other factors indicate a relatively high likelihood that the species would occur in the Study Area.

Known to occur: The species, or evidence of its presence, was observed in the Study Area during surveys or was reported by others.

Mammals

Twelve special-status mammal species have the potential to occur on BLM land in the Study Area. Ten of these are bats; the other two species are the pygmy rabbit, a BLM game species, and the dark kangaroo mouse. Bats may be found in the following key habitats: Agriculture, Woodlands, Rock Outcrops, Developed Landscapes, Sagebrush, and Intermountain Scrub. Bat surveys were not conducted as part of the field surveys; however, no signs of bats were observed in the Study Area. The pygmy rabbit and dark kangaroo mouse may be found in Sagebrush and Intermountain Scrub habitats.

Invertebrates

Six special-status invertebrate species have the potential to occur on BLM land in the Study Area. Five of these species have general or unknown habitat requirements, so it is assumed that they may be present in the Study Area. The remaining species is the early blue butterfly, which cannot be ruled out until focused surveys are conducted. There have been no recorded occurrences of any of these species (NNHP 2009), and none were observed during field surveys.

3.15.3 Special-Status Species Impacts

Impacts to special-status species would result from the permanent and temporary loss of habitat. Permanent impacts generally include habitat that would be destroyed due to construction of roadways and other transportation improvements, such as bicycle paths and Park and Rides. Temporary impacts occur from the short-term disturbance of areas that will be revegetated, including areas needed for construction access. Direct impacts include loss of habitat, increased stress due to construction activities and roadway use, and/or death caused by vehicles or vegetation removal. Indirect impacts include bisecting a potential wildlife corridor, which may cause animal vehicle collisions on wildlife or interruptions of migration patterns.

3.15.3.1 No-Action Alternative

The No-Action Alternative would result in no impacts to special-status species.

3.15.3.2 Build Alternatives

Impacts Common to All Build Alternatives

Table 3-37 in Section 3.13 *Vegetation and Noxious Weeds* summarizes the impacts to habitat resulting from the construction of the build alternatives. The impacts common to all build alternatives include permanent removal of vegetation, addition of impervious road surface and introduction of associated traffic, and habitat fragmentation. Sagebrush habitat is the predominant land cover type and, therefore, is the habitat that is most impacted. Developed Landscapes and Intermountain Scrub habitats are the second and third most impacted land cover types.



Most of the Sagebrush habitat is dominated by the invasive species cheatgrass, which lowers the diversity of the vegetation community and the ability of the habitat to support species. Special-status species that are likely to occur in the Sagebrush habitat include loggerhead shrike, ferruginous hawk, sage thrasher, Brewer's sparrow, pygmy rabbit, and dark kangaroo mouse. These species nest and/or forage in Sagebrush habitat; direct removal of sagebrush could remove cover, food, and nesting opportunities for these species. Habitat fragmentation may cause higher rates of predation, road strikes, and stress on these species. Additionally, the altered-andesite buckwheat was identified in this Sagebrush habitat in an area with andesitic derived soils. Altered andesite buckwheat is endemic to Nevada and requires a specialized acidic soil type derived from weathering of hydrothermal sulfide deposits formed in andesite or sometimes rhyolitic or granitoid rocks. Approximately 0.24 acre of this plant species would be directly impacted by construction and loss of this specialized soil type.

Special-status species most likely to occur in Developed Landscapes include peregrine falcon, little brown myotis, and pallid bat. These species have adapted to roosting in bridges and building crevices, and nesting on ledges of skyscrapers. However, the Developed Landscapes that would be impacted are predominantly shorter structures that would not provide adequate habitat for these species.

Special-status species most likely to occur in Intermountain Scrub habitat include western burrowing owl, ferruginous hawk, loggerhead shrike, sage thrasher, Brewer's sparrow, pallid bat, and dark kangaroo mouse. These species nest and/or forage in scrub habitat and direct removal of scrub habitat could reduce visibility and remove cover, food, and nesting opportunities for these species. Habitat fragmentation may cause higher rates of predation, road strikes, and stress on these species.

The build alternatives would have minimal impacts on Agricultural, Cliffs & Canyons (rock outcrops), and Intermountain Conifer Forests & Woodlands and Lower Montane Woodlands (woodlands) habitats.

Special-status species likely to occur in and around Agricultural habitat include Western burrowing owl, ferruginous hawk, Swainson's hawk, and loggerhead shrike. Swainson's hawk was the only BLM special-status bird species observed in the Study Area during field surveys. No active or remnant nests were observed for any species in the Study Area. These species nest and/or forage in these habitat; direct removal could reduce visibility, and eliminate cover, food, and nesting opportunities for these species. Habitat fragmentation could cause higher rates of predation, road strikes, and stress on these species.

Special-status species likely to use Cliffs & Canyons habitat in the Study Area include pallid bat and peregrine falcon. Special-status species likely to occur in the Intermountain Conifer Forests & Woodlands and Lower Montane Wood habitat include Townsend's big-eared bat, western small-footed myotis, fringed myotis, and pinyon jay.

Alternative 1 Impacts

Alternative 1 would be located just below the ridgeline separating Sun Valley and Spanish Springs west of the existing Pyramid Highway. It would use BLM lands that are currently managed for open space and recreation use.

Impacts to special-status species could potentially increase because of a new roadway alignment that would bisect BLM land, which is predominately Sagebrush habitat that is currently managed for recreation and open space. Alternative 1 would not affect any federally protected species or habitat.

Overall, Alternative 1 would result in the conversion of approximately 359 acres of habitat to transportation use. In addition to the acres of impact that are common to all build alternatives, Alternative 1 would permanently impact 4 acres of Developed Landscapes, 9 acres of Sagebrush, and 2 acres of Intermountain Scrub.

Alternative 2 Impacts

Alternative 2 would be an alignment following the existing Pyramid Highway between the US 395 Connection and Highland Ranch Parkway. The US 395 Connector alignment would follow the south of Rampion Way crossing of Sun Valley and would include an interchange at Sun Valley Boulevard.

In contrast to Alternatives 1 and 3, Alternative 2 includes transportation improvements between Highland Ranch Parkway and the US 395 Connection that follows the existing Pyramid Highway, which reduces the amount of existing Sagebrush habitat/BLM land converted to impervious surface between Sun Valley and Sparks. Alternative 2 would not affect any federally protected species or habitat.

Overall, Alternative 2 would result in the conversion of approximately 357 acres of habitat to transportation use. In addition to the acres of impact that are common to all build alternatives, Alternative 2 would permanently impact 3 acres of Agriculture, 9 acres of Developed Landscapes, 1 acre of Lower Montane Woodland, and 4 acres of Intermountain Scrub.

Alternative 3 Impacts

Alternative 3 would be an alignment just west of the existing Pyramid Highway between the US 395 Connection and Highland Ranch Parkway. This alignment would be just below the ridgeline separating Sun Valley and Spanish Springs west of the existing Pyramid Highway and would use BLM lands that are currently managed for open space and recreation use. Impacts to special-status species could potentially increase due to a new roadway alignment that would bisect BLM land, which is predominately Sagebrush habitat that is currently managed for recreation and open space. Alternative 3 would not affect any federally protected species or habitat.



Overall, Alternative 3 would result in the conversion of approximately 375 acres of habitat to transportation use. In addition to the acres of impact that are common to all build alternatives, Alternative 3 would permanently impact 1 acre of Lower Montane Woodland, and 13 acres of Sagebrush.

Alternative 4 Impacts

Alternative 4 would be an alignment following the existing Pyramid Highway between the US 395 Connection and Highland Ranch Parkway. In contrast to Alternatives 1 and 3, Alternative 4 includes transportation improvements between Highland Ranch Parkway and the US 395 Connection that follows the existing Pyramid Highway, which reduces the amount of Sagebrush habitat/BLM property converted to imperious surface between Sun Valley and Sparks. Alternative 4 would not affect any federally protected species or habitat.

Overall, Alternative 4 would result in the conversion of approximately 375 acres of habitat to transportation use. In addition to the acres of impact that are common to all build alternatives, Alternative 4 would permanently impact 3 acres of Agriculture, 5 acres of Developed Landscapes, 4 acres of Sagebrush, and 1 acre of Intermountain Scrub.

Impact Summary

Alternatives 1 and 3 would be located on or just below the ridgeline of the mountains west of the existing Pyramid Highway. While the amount of habitat converted to transportation would be slightly less than Alternatives 2 and 4, these alignments would bisect and further fragment existing Sagebrush habitat that is currently managed by the BLM for open space and recreation use west of Pyramid Highway between the Sun Valley and Spanish Springs valleys.

Alternatives 2 and 4 would include a new freeway alignment between Highland Ranch Parkway and US 395 that more closely follows the existing Pyramid Highway. This reduces the amount of existing open space and BLM property converted to highway on the west side of Pyramid Highway between Sun Valley and Sparks. The majority of special-status species impacts and habitat conversion for Alternatives 2 and 4 would be associated with the new US 395 Connector, which would still convert mostly public lands into transportation use. Construction of the US 395 Connector for Alternative 2 and 4 would fragment available habitat and bisect relatively large tracks of open space between Disc Drive and Sun Valley but leave existing habitat relatively intact west of Pyramid Highway.

The build alternatives would not affect any federally protected species or habitat. Informal consultation with USFWS will continue as part of this EIS process to confirm the agency's concurrence on this finding and compliance with Section 7 of the FESA. Because of the conversion of Sagebrush habitat to transportation use, all four build alternatives have the potential to affect state and BLM special-status species. However, with the incorporation of BMPs discussed below, it is not anticipated that any special-

status species would be impacted to a degree that would lead to their listing under the FESA. Also, no special-status species would be impacted in a way that would jeopardize their continued existence.

3.15.4 Special-Status Species Mitigation

RTC and/or NDOT will follow appropriate BMPs to prevent and minimize to prevent and minimize effects to special-status species during construction. Specifically, RTC and/or NDOT will:

- Employ NDOT BMPs and revegetation guidelines to minimize habitat impacts associated with vegetation removal.
- Implement an Integrated Weed Management Plan for the project.
- Conduct an additional botanical survey during the appropriate bloom time (May through end of July) for sensitive plant species prior to the initiation of the Final EIS. Avoid disturbance to existing trees, shrubs and vegetation, to the maximum extent possible.
- To avoid impacts to nesting birds in accordance with the MBTA, if construction is to commence between April 1 and August 31, a qualified biologist will conduct a nest survey prior to construction. If active nests are found, coordination with NDOW and USFWS is required to determine an appropriate course of action, which may include, but is not limited to, a delay in construction to avoid the breeding season.
- Protect wetland areas not temporarily impacted by the project from construction activities by temporary and/or construction limit fencing.
- Revegetate all disturbed areas with native grass and forb species. Seed, mulch, and mulch tackifier will be applied in phases throughout construction.
- Use erosion bales, erosion logs, silt fence, or other sediment control devices as sediment barriers and filters adjacent to wetlands, surface waterways, and at inlets where appropriate.
- Use erosion control blankets, where feasible, on steep, newly seeded slopes to control erosion and to promote the establishment of vegetation. Slopes should be roughened at all times and concrete washout contained.
- Limit work areas as much as possible to minimize construction impacts to vegetation.

3.16 VISUAL QUALITY

This section summarizes the visual impacts assessment conducted for the Study. For more detailed information, please refer to the *Visual Technical Memorandum*, June 2012.



3.16.1 Methods

The Study team conducted a visual assessment for this proposed action in accordance with FHWA guidance (U.S. DOT Order 5610.1c establishing general requirements for environmental impacts, and 23 CFR 771 Environmental Impact and Related Procedures). Generally, the visual impact assessment followed these steps:

1. Define the existing visual resources and landscape units of the Study Area.
2. Identify the project viewing audience and their typical viewpoint locations that are likely to be affected by the proposed project.
3. Identify community goals for visual quality.
4. Identify visual landmarks or vistas of regional importance seen within or from the Study Area.
5. Identify the visual quality of project Study Area landscape units and viewsheds.
6. Evaluate whether the proposed project would degrade the visual quality of visual resources viewed by viewer groups.
7. Predict viewer response to changes in visual quality based on viewer sensitivity.
8. Propose strategies that may be considered to mitigate adverse effects.

The Study team evaluated visual quality impacts for selected viewpoints based on changes in vividness, intactness, and unity. This included considering the predicted viewer response to those visual changes to assess the visual impacts. Viewers' activity can affect their sensitivity to the views of and from Pyramid Highway and Sun Valley Boulevard. Individuals driving for pleasure or engaging in recreational activities and residents have a higher sensitivity to visual changes. Residents' sensitivity to visual quality is high because of the longer duration and more frequent exposure to the Study Area's visual setting. Like residents, recreationists are highly sensitive to the visual environment because the purpose of their activities is pleasure. Visual sensitivity is lower for people driving to and from work who experience the visual environment as part of their work.

Visual impacts were assessed at specific areas where proposed structures, such as bridges, retaining walls, and traffic noise barriers, would be visible to sensitive viewers.

The Study team also conducted a visual assessment for lands in the Study Area that are owned and managed by BLM, following BLM guidance (Bureau of Land Management Manual 8431 – Visual Resource Contrast Rating). The Study team assessed the change in visual quality of BLM land using the BLM contrast rating system. This involved assessing changes in visual quality for a Key Observation Point as representative of visual impacts to BLM land in the Study Area. As prescribed by BLM, the Study team obtained BLM's Visual Resource Management (VRM) objectives (Class III and IV) for the

Study Area, selected a Key Observation Point in consultation with BLM (Viewpoint DD), prepared a visual simulation, and rated the visual contrast for the Key Observation Point. Visual contrast is measured by comparing features of the proposed action with the major features in the existing landscape. The design elements of form, line, color, and texture are used to make this comparison and to describe the visual contrast created by the proposed action. Visual simulations for the Key Observation Point helped illustrate and compare the three different alignments associated with the four build alternatives at that location. The Study team completed separate visual contrast rating worksheets for each build alternative. The June 2012, Pyramid Highway US 395 Connection: *Visual Technical Memorandum* contains completed worksheets and additional information.

3.16.2 Local and Regional Planning Efforts

To better predict viewers' response to project effect, the Study team reviewed area plans to identify community goals and policies concerning visual resources in the Study Area. Plans reviewed include the *Washoe County Regional Open Space and Natural Resource Management Plan*, *The Sparks Plan*, *Sun Valley Park District Master Plan*, *Spanish Springs Area Plan*, and *Sun Valley Area Plan*. These plans contain goals to protect the region's visual scenic resource, to preserve the visual integrity of the surrounding ridges and hills, and to avoid visual impact of hillside development. The *Washoe County Regional Open Space and Natural Resource Management Plan* identifies the ridges and mountain ranges viewed from the Study Area (Pah Rah Range to the east and Sierra Nevada to the west) as possessing high scenic values for the region. Those views are valued by Study Area residents, as reflected in the visual preservation policies found in area plans.

3.16.3 Existing Conditions

3.16.3.1 Study Area Visual Setting

The Study Area encompasses two valleys located within the hills northeast of Reno, Nevada—Sun Valley and Spanish Springs. Study Area vegetation includes interspersed grasses, shrubs, scattered trees typical of semi-arid environments, and commercial and residential landscaping. Views of hillsides and scattered commercial and residential areas interspersed with undeveloped areas are typical throughout the Study Area. Hillsides sparsely covered by sagebrush and grasses dominate views immediately west of Pyramid Highway and block views farther to the west in most areas. Generally, views from Pyramid Highway open up to the east, with views of valley developments and distant hills. Power lines are visible running along the highway and traversing area hillsides. Toward the southern end of the Study Area, views from Pyramid Highway open up to views of surrounding ridges and the Sierra Nevada mountains to the southwest. Because of the rolling topography, views of Pyramid Highway vary throughout the Study Area.



The existing Pyramid Highway is typically more visible from areas located adjacent to, or at a higher elevation than the highway. Pyramid Highway is not a designated State Scenic Highway.

The Study team identified two viewsheds in the Study Area through site visits and review of area photographs and aerial photography. The Northeast Viewshed looks northeast toward the Spanish Springs Valley from the ridgeline west of Pyramid Highway. The Southwest Viewshed looks southwest across the Sun Valley community toward Reno, with the Sierra Nevada mountain range in the background. These viewsheds are shown on Figure 3-46.

1. **Northeast Viewshed** is bounded by hills/ridgelines immediately west of Pyramid Highway. Its eastern area is defined by a valley in the foreground that is bounded to the east by undeveloped hillsides. This viewshed contains the following landscape units:
 - a. Residential Landscape Unit
 - b. Commercial Landscape Unit
 - c. Agricultural Landscape Unit
 - d. Natural Hillsides Landscape Unit
2. **Southwest Viewshed** looks southwest, with the City of Reno and Sierra Nevada mountains in the distance, forming the western boundary of this viewshed. This viewshed contains the following landscape units:
 - a. Natural Hillsides Landscape Unit
 - b. Residential Landscape Unit

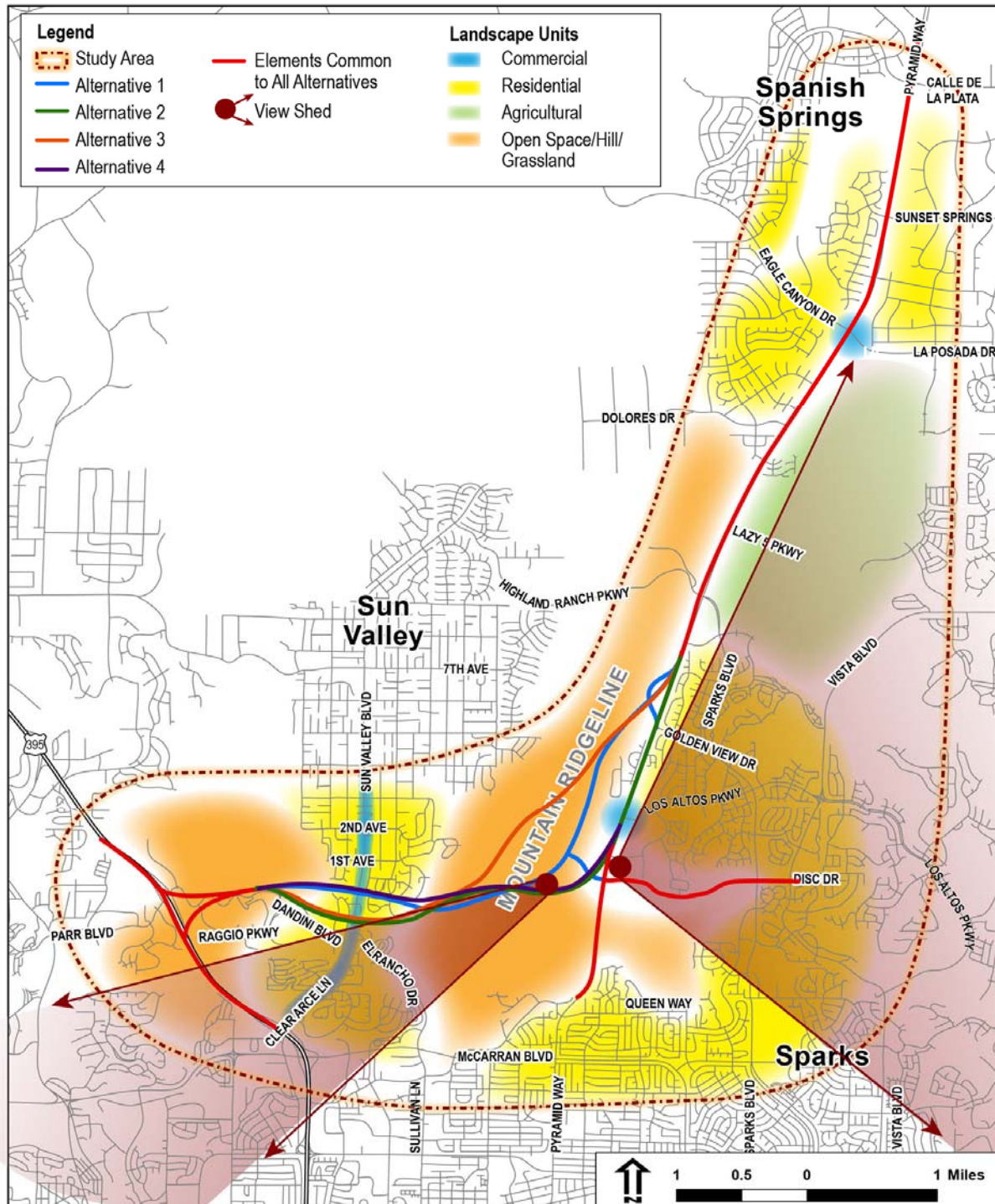


Figure 3-46. Study Area Viewsheds and Landscape Units



1
2 These photographs depict the visual setting of the Study Area, shown north to south and
3 east to west. The photo locations are shown on Figure 3-47.
4



Photo 1: View of commercial development at Eagle Canyon Drive, power lines along Pyramid Highway, and distant hills, looking north from Pyramid Highway. Represents view of motorists.



Photo 2: View looking north along Pyramid Highway. Shows Study Area vegetation, power lines, area developments, and distant hills. Spanish Springs Library in middleground. Represents view of recreation users and motorists.

1
2



Photo 3: View looking north along Pyramid Highway, showing Study Area topography near Los Altos Parkway. Representative of the Natural Hillside, Commercial, and Residential Landscape Units.

3



Photo 4: View east of Pyramid Highway showing commercial development and open views to the east; Pyramid Highway in foreground. Representative of the Commercial and Natural Hillside Landscape Units.



1
2



Photo 5: View from Pyramid Highway in southern portion of Study Area north of Queen Way, with views of Reno and Sierra Nevada mountain range in the distance. Represents Southwest Viewshed.

3



Photo 6: View of existing US 395/Parr/Dandini interchange looking west. Shows power lines that run through Study Area. Representative of Open Hillside Landscape Unit.

4

3.16.3.2 Study Area Viewer Groups

The Study team identified and categorized viewer groups in the Study Area. Viewer groups include individuals with views from Pyramid Highway and Sun Valley Boulevard, such as commuters, local motorists, and tourists. Viewer groups also include those with views of Pyramid Highway and Sun Valley Boulevard, such as residents, owners/employees/patrons of commercial and retail establishments, and recreational users that pass through the Study Area by foot or bicycle.

3.16.3.3 Existing Visual Quality

To assess the existing visual quality of the Study Area, the Study team first identified representative views that may be seen or valued by viewer groups in the Study Area. These viewpoints were selected based on how they represented Landscape Units and views of sensitive viewers identified in the Study Area. Figure 3-47 shows the viewpoint locations. The Study team then ranked the existing visual quality for each viewpoint according to the criteria of vividness (visual power or memorability of landscape components), intactness (visual integrity of the natural and manmade landscape), and unity (visual coherence and visual harmony of the landscape) criteria. Each of these criteria was ranked in terms of Very Low, Low, Moderately Low, Moderate/Average, Moderately High, High, or Very High. The Study team then combined the rankings of all viewpoints to determine the overall existing visual quality in the Study Area. Following are the viewpoints and their visual quality ratings.



1

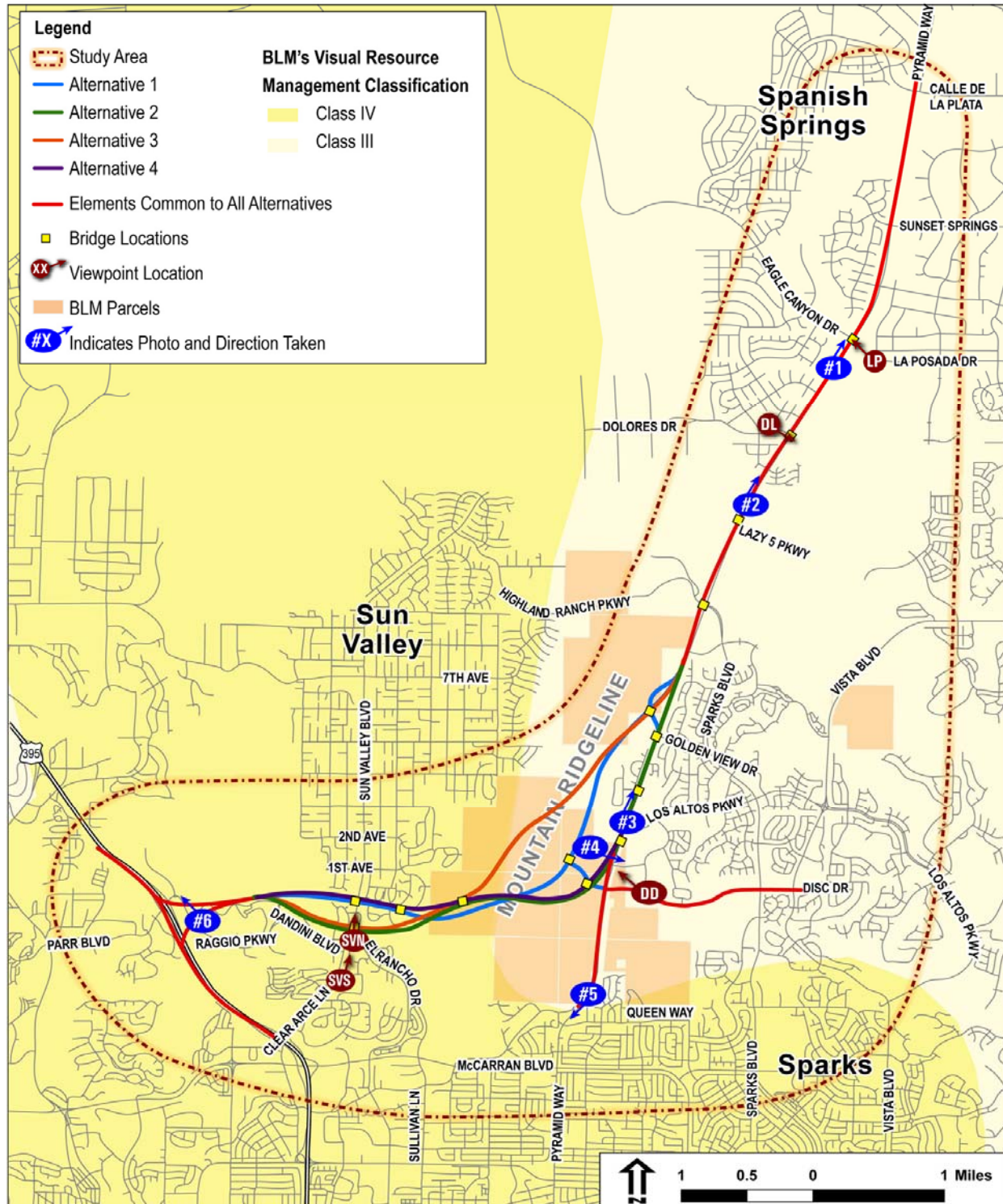


Figure 3-47. Viewpoint Locations and BLM Visual Resource Management Classifications

Viewpoint LP: View from La Posada looking west toward Pyramid Highway. This viewpoint, located in the northern Study Area, illustrates a local motorist's view from La Posada looking west toward Pyramid Highway and views of the Commercial Landscape Unit in the Northeast viewshed. This view presents conflicting patterns of commercial and retail development with associated lighting. Background views of hillsides are typical in the Study Area. The presence of Pyramid Highway is almost indistinguishable. Overall, the view is dominated by human-made elements. The overall visual quality rating for this viewpoint is Moderately Low.



Viewpoint LP: View from La Posada looking west toward Pyramid Highway



Viewpoint DL: View from Dolores Drive looking east toward Pyramid Highway. This viewpoint illustrates a resident's view toward Pyramid Highway and the Natural Hillside Landscape Unit in the Northeast Viewshed. This view is dominated by paved roadway, with views of rolling hills in the distance that are intruded upon with power poles and power lines. These views of distant hills are common in the Study Area. Native and residential roadside vegetation, driveways, and mailboxes edge the roadway. Pyramid Highway is barely discernible. Natural landscape and paved road are competing visual elements in this view. The overall visual quality rating for this viewpoint is Moderate/Average.



Viewpoint DL: View from Dolores Drive looking east toward Pyramid Highway

Viewpoint DD: View from Disc Drive toward Pyramid Highway and BLM hills. This viewpoint captures views of local motorists on Disc Drive driving toward Pyramid Highway and their view of the Natural Hillside Landscape Unit within the Northeast Viewshed. The view is dominated by natural open landscape and hillsides, which are common in the Study Area and not highly. Pyramid Highway is barely discernible, but creates a visual break. The visual pattern of natural rolling hills and natural open space is minimally encroached upon by the commercial landscaping in the foreground. The overall visual quality rating for this viewpoint is moderately high. Note: the assessment of existing visual conditions for this viewpoint according to BLM criteria is presented later in this section.



Viewpoint DD: View from Disc Drive west toward Pyramid Highway and BLM hills



Viewpoint SVN: View from Sun Valley Boulevard near Dandini Boulevard looking north. This viewpoint captures the view of local motorists, commercial/retail patrons and employees traveling north on Sun Valley Boulevard in the area of the proposed Rampion Way crossing of Sun Valley Boulevard. It represents the Commercial Landscape Unit. This view is dominated by manmade elements (paved roadway, sidewalk, commercial landscaping, and power poles/power lines). The roadway directs the viewer's eye to the distant hills, making the distant hill somewhat memorable in this view. The manmade and natural elements create an unharmonious visual pattern in this view. The overall visual quality rating for this view is Moderately Low.



Viewpoint SVN: View from Sun Valley Boulevard looking north

Viewpoint SVS: View from Sun Valley Boulevard near Crystal Lane looking north.

This viewpoint captures the view of local motorists, commercial/retail patrons and employees traveling north on Sun Valley Boulevard in the area of the proposed south of Rampion Way crossing of Sun Valley Boulevard. Manmade elements (roadway, residential buildings, commercial buildings, power poles) and natural landscape (roadside vegetation and distant hills) are visually equal in this view. The roadway and roadside vegetation lead the viewer's eye to the hills in the background, making the distant hills visually distinct and memorable. The horizon is fairly unobstructed. Overall, the view does not present a distinctive visual pattern. The overall visual quality rating for this view is Moderate/ Average.



Viewpoint SVS: View from Sun Valley Boulevard looking north

Summary

Based on these ratings for the selected viewpoints, the Study Area's overall existing visual quality was assessed as Moderate/ Average.



3.16.4 BLM Parcel

The Study team conducted a visual assessment for BLM lands in the Study Area in accordance with BLM guidelines. BLM VRM class objectives are used to analyze impacts on visual resources. These objectives provide a baseline for assessing how a proposed project would impact visual resources and scenic quality, and for assessing the level of disturbance that an area can experience and remain consistent with the visual resource objectives. Visual impacts occur if a proposed action is inconsistent with the VRM class objectives. BLM's VRM classifications range from Class I (preserve existing landscape character) to Class IV (provide for management activities that require major modifications of existing landscape character). BLM land in the Study Area falls under BLM's VRM Class III and Class IV objectives, which are defined below and shown on Figure 3-47.

- **Class III Objective: To partially retain the existing character of the landscape.** The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape. As shown on Figure 3-47, most BLM land in the Study Area falls under this classification.
- **Class IV Objective: To provide for management activities that require major modifications of the existing character of the landscape.** The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize these activities through careful location, minimal disturbance, and repeating the basic elements.

3.16.4.1 Existing Visual Conditions at BLM Parcel

The Study team assessed visual conditions of the BLM parcel located in the area northwest of the existing Pyramid Highway/Disc Drive intersection as representative of visual conditions for other BLM land in the Study Area. The parcel is characterized by rolling hillsides with short dense semi-desert vegetation and scattered rock outcroppings, as shown on Viewpoint DD below. On other areas of the parcel not shown in the visual simulation prepared for this parcel, transmission lines and associated maintenance dirt roads run through the property, and several informal recreation trails are evident on the hillsides. Other areas on the parcel show signs of illegal dumping of such material as old tires and metal containers. Major roadways in the area include Pyramid Highway and its cross-streets. The eastern portion of the parcel, for which a visual simulation was prepared, is viewed by motorists and bicyclists traveling along Pyramid Highway, as well as area commercial and residential developments.

Viewpoint DD: View from Disc Drive west toward Pyramid Highway and BLM hills.

This viewpoint captures the views of local drivers on Disc Drive traveling west toward Pyramid Highway, with views of BLM land in the background. The Study team selected this viewpoint because it is representative of existing conditions of BLM lands in the Study Area, and because this area falls within BLM's Class III objective, which is the more conservative of the two BLM classes in the Study Area. The BLM land features in this view are described using BLM's visual contrast rating terms. Only the BLM land visible in the background of this view is described and assessed for the BLM VRM rating. Viewpoint DD presents a view of rolling, undulating terrain. Hillside surfaces are fine to medium grain, with a dense and uniform surface mixed with small areas of coarser texture. Short grasses and sagebrush cover the hillsides in smooth, continuous patterns in monotone colors ranging from yellow to beige. No human-made structures are visible from this viewpoint.



Viewpoint DD. looking west/northwest from Disc Drive across Pyramid Highway toward BLM land



3.16.4.2 Impacts

This section describes anticipated impacts to Study Area visual quality from the alternatives. Visual impacts can result from the introduction of new visual elements, such as new roadways, bridges, and retaining walls.

No-Action Alternative

The No-Action Alternative would result in visual impacts associated with continued residential and commercial development and associated roadway infrastructure in the Study Area. BLM's goals to reduce illegal dumping and the use of informal trails would change the visual conditions on BLM-managed land in the Study Area.

Build Alternatives

Discussion of visual impacts for the build alternatives is organized as follows:

- Visual impacts at the selected viewpoints, with predicted viewer response.
- Visual impacts for specific areas along the corridor where new structures are proposed.
- Visual contrast rating for BLM land in the Study Area.
- Summary of impacts.

Viewpoints

Viewpoint LP: View from La Posada looking west toward Pyramid Highway. All build alternatives would result in the same visual change at this intersection in the form of an elevated Pyramid Highway. Views of the commercial areas west of the highway would be partially blocked by the elevated structure and slopes; however, existing views of distant hills would not be obstructed. The presence of Pyramid Highway would be more evident. With mitigation, in the form of landscaping on overpass slopes (as shown in the After View), the consistent pattern created by the landscaped slopes would partially replace the mixed pattern created by the commercial areas west of the highway. In addition, the landscaped slopes would create a visual link between the foreground landscaping and views of distant hills, creating a more unified view of the natural landscape. The visual quality rating would slightly increase but remain Moderately Low.

The following page compares the "before" and "after" views for this viewpoint for all build alternatives.

1



Viewpoint LP: View from La Posada looking west toward Pyramid Highway—Before View



Viewpoint LP: View from La Posada looking west toward Pyramid Highway—After View

2
3



Viewpoint DL: View from Dolores Drive looking east toward Pyramid Highway. All build alternatives would result in the same visual change at this intersection in the form of an elevated Pyramid Highway. The presence of Pyramid Highway would be more evident, and it would change the landscape character from rural residential to rural freeway. Although the existing visual intrusion from power lines on background views would be removed, the addition of traffic signals would still provide a visual intrusion on that view. Views of roadside vegetation, mailboxes, and driveways would be replaced with views of paved roadway, creating a more consistent roadway pattern in the foreground. The addition of vegetated highway slopes would provide a visual link to the view of distant hills. As a result of all build alternatives, the visual quality rating for this view would slightly increase but remain Moderate/Average.

The following page compares the “before” and “after” views for this viewpoint for all build alternatives.

1



Viewpoint DL: View from Dolores Drive looking east toward Pyramid Highway—**Before View**



Viewpoint DL: View from Dolores Drive looking east toward Pyramid Highway—**After View**

2

3



Viewpoint SVN: View from Sun Valley Boulevard near Dandini Boulevard looking north. This viewpoint represents the Rampion Way crossing of Sun Valley Boulevard proposed under Alternatives 1 and 4. The roadway would remain well-defined, and the mixed pattern created by buildings, landscaping, and power lines would also remain. The hill and roadway would continue to be competing visual elements. The new elevated structure would contribute to the existing unharmonious visual pattern in this view. However, the visual line of the new elevated structure would be consistent with existing views of power poles and power lines. Although the new highway structure would create a visual intrusion on the view of the distant hill, the hill would remain a dominant and memorable visual element in this view. The overall visual quality rating for this view would be slightly reduced but remain Moderately Low.

The following page compares the “before” and “after” views for this viewpoint for Alternatives 1 and 4.

1



Viewpoint SVN: View from Sun Valley Boulevard near Dandini Boulevard looking north—**Before View**



Viewpoint SVN: View from Sun Valley Boulevard near Dandini Boulevard looking north—**After View** (Alternatives 1 and 4)



Viewpoint SVS: View from Sun Valley Boulevard at Crystal Lane looking north: This viewpoint represents the south of Rampion Way crossing of Sun Valley Boulevard proposed under Alternatives 2 and 3. The new elevated structure would be a comparatively minor visual addition in this view. Views of distant hills would be unobstructed and continue to be distinct and memorable. The elevated roadway would introduce a horizontal line across the straight road vanishing to the horizon, but it would be a small disruption to the overall view. Although the structure would create a visual break in the middleground landscape, that landscape would continue to provide a visual link to the distant hills. Commercial and residential buildings and roadside vegetation would continue to present mixed visual patterns in this view, but the new fill slope would create a more consistent pattern with the existing landscape. The horizon line would remain unobstructed. The visual quality rating for this view would remain Moderate/ Average.

The following page compares the “before” and “after” views for this viewpoint for Alternatives 2 and 3.

1



Viewpoint SVS: View from Sun Valley Boulevard near Crystal Lane looking north—**Before View**



Viewpoint SVS: View from Sun Valley Boulevard near Crystal Lane looking north—**After View (Alternatives 2 and 3)**

2



Viewpoint DD: View from Disc Drive toward Pyramid Highway and BLM hills

(Alternative 1). The natural landscape would continue to dominate this view. Human-made elements in the form of a widened Pyramid Highway, extended Disc Drive, and elevated crossing structure and fill slopes would be introduced into this view. Those human-made elements would create a visual intrusion in the natural rolling landscape and create an interruption in the consistent visual pattern. Views of the rolling hillsides would be slightly obstructed by the elevated structure and fill slope, but the visual intrusion by human-made elements would not be considerable. Mitigation, in the form of landscaping, would visually blend the fill slope into the surrounding natural landscape. As a result of Alternative 1, the visual quality rating for this view would be slightly reduced but remain Moderately High.

The following page compares the “before” and “after” views for this viewpoint for Alternative 1.

1



Viewpoint DD: View from Disc Drive west toward Pyramid Highway and BLM Hills—**Before View**



Viewpoint DD: View from Disc Drive toward Pyramid Highway and BLM hills—**After View** (Alternative 1)

2



Viewpoint DD: View from Disc Drive toward Pyramid Highway and BLM hills (Alternative 2 and Alternative 4—on alignment). The elevated alignment and structure for the connection from Pyramid Highway to the US 395 Connector would result in a greater visual change than under Alternative 1, with fill slopes partially blocking views of the distant rolling hills. Although those views are common in the Study Area, this would represent a considerable visual change. Mitigation in the form of landscaping would visually blend the fill slope with the surrounding landscape, but the human-made elements would create a break in the integrity of the visual pattern. Alternatives 2 and 4 would reduce the visual quality rating for this view to Moderate/Average.

The following page compares the “before” and “after” views for this viewpoint for Alternatives 2 and 4.

1



Viewpoint DD: View from Disc Drive west toward Pyramid Highway and BLM Hills—**Before View**



Viewpoint DD: View from Disc Drive toward Pyramid Highway and BLM hills —**After View** (Alternatives 2 and 4)

2



Viewpoint DD: View from Disc Drive toward Pyramid Highway and BLM hills

(Alternative 3—ridge alignment. In this view, the new roadway would be barely discernible (a portion of the alignment can be seen on the right side of photo in middle of hillside) and would not be noticeable. Therefore, the visual quality rating for this view would not change and remain Moderately High.

The following page compares the “before” and “after” views for this viewpoint for Alternative 3.



Viewpoint DD: View from Disc Drive west toward Pyramid Highway and BLM Hills—**Before View**



Viewpoint DD: : View from Disc Drive west toward Pyramid Highway and BLM Hills—**After View** (Alternative 3)

1
2



3.16.5 Visual Quality Impacts

Under all build alternatives, the visual quality of Viewpoints LP, DL, SVN and SVS would be slightly degraded because of the addition of highway structures that are not harmonious with the natural landscape character. Viewer response is anticipated to be negative for Viewpoints DL and SVN, and neutral with Viewpoints LP and SVS. For Viewpoint DD, the visual quality would not change under Alternative 3 and would be slightly degraded under Alternative 1. Alternatives 2 and 4 would result in the highest degradation of visual quality for Viewpoint DD among the build alternatives. Therefore, viewer response to Viewpoint DD under Alternatives 1 and 3 is anticipated to be neutral, and negative under Alternatives 2 and 4.

Recreationists' overall response is predicted to be favorable because their viewing opportunities would be enhanced by the addition of bicycle and pedestrian facilities provided by all build alternatives. These facilities would provide safer opportunities for bicyclists and pedestrians to look at the scenic views. The response of highway motorists to the change in visual quality is predicted to be favorable because of the new opportunities to see scenic views that the new elevated structures would provide.

Visual changes for the selected viewpoints and predicted viewer response are measured in terms of Low, Moderate, Moderately High, or High changes to visual resources. Based on the visual quality ratings above, the Study team has determined that, with implementation of mitigation measures, all build alternatives would result in a Moderate visual change. A Moderate visual change means that a Moderate / Adverse change to the visual resource with moderate viewer response would occur, and that mature vegetation removed during construction could be replicated within five years using conventional practices. Section 3.16.6 *Visual Mitigation* has a description of measures that RTC and/or NDOT will implement to mitigate visual impacts.

3.16.5.1 Impacts Common to All Build Alternatives

All build alternatives would introduce new visual elements in the Study Area in the form of street lighting, bridges, ramps, new roadway alignment, cut and fill areas, retaining walls, traffic noise barriers, and screening walls.

- **Lighting.** The addition of street lighting would potentially increase nighttime glare and light pollution in the Study Area.
- **Bridges.** A redesigned US 395 interchange at Parr Boulevard would change area views of the interchange with additional ramps, piers, and cuts. The build alternatives also would elevate Pyramid Highway over its existing at-grade crossings of Eagle Canyon Drive, Dolores Drive, Lazy 5 Parkway, and Sparks Boulevard. The new bridges and associated ramps would change views from an at-grade intersection to views of an elevated highway with vegetated slopes. The bridges would partially obstruct views for any commercial or residential areas in the

immediate vicinity, and would make the presence of Pyramid Highway more obvious to viewers located farther from the interchange. Generally, views of distant hills would remain obstructed. The bridges would improve distant views for Pyramid Highway motorists. Viewpoint LP and Viewpoint DL visual simulations are examples of visual changes associated with the bridges.

- **Cut and Fill Areas:** All build alternatives would result in cut and fill areas as a result of earthmoving during construction. A cut is created when soil or rock material from a hill is removed for construction, and conversely, fill is created when soil or rock is added to a low area. All build alternatives would result in the same cut and fill areas in the Red Hills area above the Desert Research Institute from construction of the US 395 connector, resulting in a visual change. Within the Study Area, views of the Red Hills area from Sun Valley Boulevard, Clear Acre Lane, and US 395 north of McCarran Boulevard are blocked by local topography; therefore, views of cuts and fills would also be blocked from those areas. However, the Red Hill area is visible in the background to viewers in valley areas located at the southern end of the study area (approximately 1.5 mile away from the hillside) and beyond, and the hillside cuts and fills would be visible to those viewers. However, the cut/fill areas would become less noticeable to viewers located farther away (more than 1.5 miles) from the hillside. Mitigation in the form of revegetating cut and filled areas would make the visual change indiscernible from 1.5 miles away and beyond.
- **Retaining walls.** Retaining walls would be provided under all build alternatives to reduce impacts from right-of-way acquisition. Retaining wall locations described here are based on a preliminary level of design and provide a sufficient level of detail to assess potential impacts. The final location and dimension of retaining walls will be determined during final design. Retaining walls would be constructed along the east side of Pyramid Highway at the residential area south of Tierra del Sol and along US 395 near the Sun Villa Estates. These walls would change resident views from that of a vegetated slope up to the highway to that of a retaining wall. A retaining wall would be built along the south side of Disc Drive between Sparks Boulevard and Vista Boulevard, which would only be visible to residences located immediately adjacent to Disc Drive on the south. Examples of retaining wall designs are shown Figure 3-48. The appearance of retaining walls for this project will be determined during final design through coordination with local governments and affected communities.
- **Traffic noise barriers.** All proposed traffic noise barriers will require additional coordination with the affected communities. A 12-foot-high traffic noise barrier would be built at the Willow Creek subdivision located south of Disc Drive and east of Sparks Boulevard, changing Disc Drive motorists and residents views of an approximate 6-foot-high concrete wall to views of a traffic noise barrier. Two 12-foot-high traffic noise barriers would be built south of Dolores Drive at the Springwood Subdivision along the proposed Pyramid Highway shoulder and ramp. Resident



views toward Pyramid Highway are currently obstructed by mature landscaping and fencing. Any existing views of Pyramid Highway and farther to the east would be blocked by the traffic noise barrier. The traffic noise barriers would also be visible from Tierra Del Sol residents east of Pyramid Highway. The traffic noise barriers would block views of the Springwood Subdivision, and views of hillsides west of Pyramid Highway would be partially obstructed. The traffic noise barriers would block western views of motorists. Lastly, a 14-foot-high traffic noise barrier would be built at the Whittel Pointe Apartments along US 395. Residents currently have a view of a sparsely vegetated slope leading up to the highway topped with an approximate 6-foot-high fence. Those views would change with the addition of a traffic noise barrier. Examples of traffic noise barriers are shown in Figure 3-49. The design and appearance of traffic noise barriers for this project will be determined during final design through coordination with local governments and affected communities.

- **Screening Walls.** RTC and/or NDOT will construct screening walls to mitigate visual impacts in Environmental Justice areas caused by construction of proposed roadway improvements, if supported by the affected neighborhoods. These walls would create a visual change for these areas. The appearance of screening walls would be similar to the example traffic noise barriers shown above. The design and appearance of screening walls for this project will be determined during final design through coordination with local governments and affected communities. Screening walls are proposed for the following Environmental Justice neighborhoods:
 - ♦ Sun Villa Estates
 - ♦ Mobile Glen Estates
 - ♦ Sun Valley Estates
- **Wedekind Park.** All build alternatives would construct a water quantity/quality basin in the southwest portion of the park, introducing a human-made structure in that undeveloped area.
- **Community goals for visual quality.** Views of the surrounding ridges, hillsides, and distant mountain ranges would be maintained under all the build alternatives. Improvements under all build alternatives would result in moderate impacts to the undeveloped Natural Hillsides Landscape Unit in the Study Area, and they would include mitigation measures to visually blend the proposed improvements with surrounding natural landscape. Additionally, all of the build alternatives would be consistent with BLM's Visual Resource Management classifications for BLM-owned and managed land in the Study Area. Therefore, the build alternatives would be consistent with local and regional policies for visual preservation.

1



Figure 3-48. Retaining Wall Examples

2



1



Figure 3-49. Traffic Noise Barrier Examples

2

- **Construction.** All build alternatives would result in temporary visual impacts from such construction activities as temporary vegetation removal, disturbed/stockpiled soil, movement of construction equipment to and from construction sites, construction equipment operation, dust, detour and traffic control signage, and construction barriers. Nighttime construction activities may temporarily introduce light and glare for residents, businesses, and local motorists. These temporary visual effects would be typical of any major roadway improvement project, and are not considered to be significant.

Alternative 1

In addition to the visual impacts common to all build alternatives, Alternative 1 would result in the following visual impacts:

- Visual change for Wedekind Park user views of the undeveloped hillsides northwest of the park by adding roadway and bridge structures associated with the extension of Disc Drive west, and US 395 Connector roadway and interchange, as shown in Viewpoint DD visual simulation.
- The northern connector crossing would be visible to Wildcreek park users, but less visible than the south of Rampion Way crossing associated with Alternatives 2 and 3.
- A retaining wall would be included along the east side of Pyramid Highway north of Golden View Drive. Residents currently view an approximate 6-foot-high masonry wall along Pyramid Highway; therefore, the retaining wall would not result in a significant visual change to those residents.
- A retaining wall would be included on the east side of the new Pyramid alignment behind the commercial/retail area west of Pyramid Highway at Los Altos Parkway. This retaining wall would be constructed on an undeveloped slope and be visible to retail employees and the residential area to the north.
- The RTC and/or NDOT will construct screening walls to mitigate visual impacts resulting from construction of roadway improvements in EJ areas, if supported by the affected neighborhoods. These screening walls would create a visual change for these areas. Screening walls are proposed for the following Environmental Justice neighborhoods under Alternative 1 :
 - ♦ Ross Park Estates
 - ♦ High Country Estates
- Alternative 1 would include the following structures:
 - ♦ Bridge over Leon Drive, which would be visible from residents in the immediate vicinity.
 - ♦ Bridge over Sun Valley Boulevard at Rampion Way. This would result in a visual change for motorists, businesses, and residents in the immediate vicinity.



- ♦ The Rampion Way crossing of Sun Valley Boulevard would likely only be visible as it crosses Sun Valley Boulevard because of the area's topography, and would, therefore, be less visible than the south of Rampion Way crossing associated with Alternatives 2 and 3, as shown in the Viewpoint SVN visual simulation.

Alternative 2

In addition to the visual impacts common to all build alternatives, Alternative 2 would result in the following visual impacts:

- Visual change for Wedekind Park user views of the undeveloped hillsides northwest of the park by adding roadway and bridge structures associated with the extension of Disc Drive and the US 395 connector roadway and interchange. Alternative 2 and 4 would result in the highest visual impacts to park users because the new interchange would be located closer to Pyramid Highway and more visually prominent those alternatives. This is shown in the Viewpoint DD visual simulation.
- The southern connector crossing would be more visible to Wildcreek park users than the north crossing under Alternatives 1 and 4. However, the active park areas are located in the southern portion of the park located farthest away from the crossing, and would result in minimal visual impacts to park users.
- A retaining wall would be included along the east side of Pyramid Highway north of Golden View Drive. Residences in this area currently backing the highway have views of a retaining wall topped with an approximate 6-foot-high masonry wall along Pyramid Highway. Alternative 2 would require acquisition of the residences located immediately adjacent to the highway. Therefore, views of residents across the street from the acquired residences would change from views of residential houses to a retaining wall, resulting in a considerable visual change.
- A retaining wall would be included along the east side of Pyramid Highway at the Blue Gem Estates. An approximately 10-foot-high retaining wall is currently located along Pyramid Highway in this area. Alternative 2 would acquire the residences located immediately adjacent to the highway. Therefore, views of residents across the street from the acquired residences would change from views of residences to a retaining wall, resulting in a considerable visual change. The retaining wall would not be visible to Pyramid Highway motorists.
- Two retaining walls would be constructed along the north side of the new alignment west of Sun Valley Boulevard, which would be visible from residences on West Leonasio Drive.
- A 12-foot-high noise barrier would be built at the Oasis Mobile Estates and Blue Gem Estates east of Pyramid Highway. The noise barrier would change resident views of an approximate 6-foot-high existing masonry wall to that of a 12-foot-high masonry wall. Residents' views of hillsides west of Pyramid Highway would be obstructed. The barrier also would change views of Pyramid Highway motorists

from an approximate 6-foot-high masonry wall, residences, and mature trees to views of a noise barrier. Motorists' views to the east are currently blocked by residences and mature trees, and would continue to be blocked by the new barrier.

- An 8-foot-high traffic noise barrier would be built along the Spring Ridge Subdivision west of Pyramid Highway and north of Los Altos Parkway. Currently, a vegetated berm topped with fencing is located between this subdivision and the highway, blocking resident views to the east. The traffic noise barrier would continue to block those views. Views of Pyramid Highway motorists to the west are of a vegetated berm with fence and residential rooftops, which obstruct views of hills farther to the west. Motorist views would change from that of a vegetated berm with fence to that of a traffic noise barrier, and views farther west would still be obstructed.
- The RTC and/or NDOT will construct screening walls to mitigate visual impacts resulting from construction of roadway improvements in Environmental Justice areas, if supported by the affected neighborhoods. These screening walls would create a visual change for these areas. Screening walls are proposed for the following EJ neighborhoods under Alternative 2:
 - ♦ Oasis Mobile Estates
 - ♦ Blue Gem Estates
- Alternative 2 would include the following structures:
 - ♦ Pyramid Highway bridge and ramps over Golden View Drive would be visible from residential areas east of Pyramid Highway and partially block views west of Pyramid Highway. However, views of hills to the west would be unobstructed. The bridge would partially obstruct views from the commercial area on the west side of Pyramid Highway to the east.
 - ♦ Pyramid Highway bridge and ramps over Los Altos Parkway would be visible from commercial and retail areas located in the immediate vicinity, obstructing views of hillsides in the distance. The elevated structures would improve distant views for Pyramid Highway motorists.
 - ♦ The south of Rampion Way crossing of Sun Valley Boulevard would be more visible than the Rampion Way crossing associated with Alternatives 1 and 4 because the cuts and fill slope heights in the eastern portion would be larger.

Alternative 3

In addition to the visual impacts common to all build alternatives, Alternative 3 would result in the following visual impacts:

- Visual change for Wedekind Park user views of the undeveloped hillsides northwest of the park as a result of the new extension of Disc Drive to the west. This would introduce human-made structures to existing views of undeveloped rolling hills. The



new US 395 Connector would be located higher on the ridgeline than the other build alternatives, and views of the new roadway would be partially blocked by the hills. Additionally, the new Disc Drive/US 395 Connector interchange would be located farther to the west than the other build alternatives. Therefore, Alternative 3 would result in the lowest visual impacts to park users than the other build alternatives. Viewpoint DD visual simulation shows Alternative 3.

- Visual impacts to Wildcreek Park users would be the same as those described under Alternative 2.
- A retaining wall would be constructed along the east side of Pyramid north of Golden View Drive, resulting in the same visual impacts described under Alternative 1. Visual impacts from the south of Rampion Way crossing of Sun Valley Boulevard under Alternative 3 would be the same as those described under Alternative 2. The west of Sun Valley interchange would be more visible from the south under Alternative 3 than under Alternative 4.

Alternative 4

In addition to the visual impacts common to all build alternatives, Alternative 4 would result in the following visual impacts:

- Same impacts to Wedekind Park users as those described under Alternative 2.
- Same bridge impacts as those described under Alternative 1.
- Same impacts to Wildcreek Park users as those described under Alternative 1.
- Impacts from retaining walls would be the same as those described under Alternative 2.
- Impacts from bridges over Golden View Drive, Los Altos Parkway, and Disc Drive extension would be the same as those described under Alternative 2.
- The northern West Sun Valley interchange would be visible from residential areas to the south, but less visible than the southern interchange associated with Alternative 3.
- Traffic noise barrier impacts would be the same as those described under Alternative 2.
- The RTC and/or NDOT will construct screening walls to mitigate visual impacts resulting from construction of roadway improvements in EJ areas, if supported by the affected neighborhoods. These screening walls would create a visual change for these areas. Screening walls are proposed for the following Environmental Justice neighborhoods under Alternative 4:
 - ♦ Ross Park Estates

- ♦ High Country Estates
- ♦ Oasis Mobile Estates
- ♦ Blue Gem Estates

3.16.5.2 BLM Parcels

This section describes the change in visual contrast to the BLM parcel located west of the Pyramid Highway/Disc Drive intersection, as illustrated in Viewpoint DD. Impacts in this area are representative of visual impacts to the BLM parcel located farther north between Golden View Drive and Highland Parkway, west of Pyramid Highway.

No-Action Alternative

The No-Action Alternative would be consistent with BLM's VRM Class III because no direct visual impacts to BLM land would occur.

Build Alternatives

All build alternatives would introduce new roadway structures on the hills located on the BLM parcel represented in Viewpoint DD, and introduce geometric lines in the rolling forms of the undeveloped hillsides, and introduce dark gray colors in the hillsides' yellow-beige colors. Of all the build alternatives, Alternatives 2 and 4 would result in the highest visual change in this area. This is because the roadway and associated embankments would be located closer to Pyramid Highway, making them more visually prominent than the other alternatives. Although Alternative 1 would introduce a visual change in the form of an elevated crossing structure and fill slopes, it would result in a lower visual change than Alternatives 2 and 4 because the structures under Alternative 1 would be located farther from Pyramid Highway and would be less visually prominent. Alternative 3 would result in the lowest visual change because the new roadway would be located farther in the distance, with the majority of the alignment disappearing behind the hillsides, making it barely discernible on the distant hillsides.

The Study team found that, although some of the roadway structures would attract attention, with mitigation, the structures would reproduce the basic elements of the surrounding environment and would not dominate the view of the casual observer. Therefore, the Study team determined that the build alternatives would be consistent with BLM's VRM Class III objective established for this area, as well as the VRM Class IV objective established for BLM parcels located in the northern portion of the Study Area.

3.16.5.3 Summary of Visual Quality Impacts

Table 3-43 summarizes the visual impacts anticipated for all alternatives.



Table 3-43. Summary of Visual Impacts

No-Action Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4
<ul style="list-style-type: none"> Visual changes associated with continued area development. Consistent with BLM VRM Class III. Consistent with local and regional visual preservation policies. 	<ul style="list-style-type: none"> No change in visual quality for viewpoints. Predicted negative viewer response to Viewpoints DL and SVN. Visual impacts to Wedekind Park users. Lower visual impacts to Wildcreek park users than Alts. 2 and 3. 19 bridge structures. Sun Valley Boulevard crossing would only be visible as it crosses the road and would be less visible than Alts. 2 and 3 south of Rampion Way crossing. 4 traffic noise barriers. 5 screening walls at EJ areas Impacts from 5 retaining walls. Visual impacts from cut/fill areas in Red Hills area. Consistent with BLM VRM Classes III and IV, with mitigation. Consistent with local and regional visual preservation policies. 	<ul style="list-style-type: none"> Degraded visual quality for Viewpoint DD. Predicted negative viewer response to Viewpoints DL and DD. Highest visual impacts to Wedekind Park users. Higher visual impacts to Wildcreek park users than Alts. 1 and 4. 20 bridge structures. 5 traffic noise barriers. 5 screening walls at EJ areas Impacts from 7 retaining walls. Same visual impacts at Red Hill Area as Alt. 1. Highest visual change to BLM parcel. Consistent with BLM VRM Classes III and IV, with mitigation. Consistent with local and regional visual preservation policies. 	<ul style="list-style-type: none"> No change in visual quality for viewpoints. Predicted negative viewer response to Viewpoint DL. Lowest visual impacts to Wedekind Park users. Same impacts to Wildcreek Park as Alt. 2. 20 bridge structures. West of Sun Valley interchange more visible from the south than Alt. 4. Same traffic noise barriers as Alt. 1. Same screening walls as Alt. 1. Same visual impacts at Red Hill Area as Alt. 1. Impacts from 4 retaining walls. Lowest visual change to BLM parcel. Consistent with BLM VRM Classes III and IV, with mitigation. Consistent with local and regional visual preservation policies. 	<ul style="list-style-type: none"> Same degraded visual quality for Viewpoint DD as Alt. 2. Predicted negative viewer response to Viewpoints DL, DD, and SVN. Same impacts to Wedekind Park users as Alt. 2. Same impacts to Wildcreek park as Alt. 1. 24 bridge structures. West of Sun Valley interchange less visible from the south than Alt. 3. Sun Valley boulevard crossing would result in same visual impacts as Alt. 1. Same traffic noise barriers as Alt. 2. 7 screening walls at EJ areas. Same visual impacts at Red Hill Area as Alt. 1. Impacts from 5 retaining walls. Same impacts to BLM parcel as Alt. 2. Consistent with local and regional visual preservation policies.

3.16.6 Visual Quality Mitigation

This section describes mitigation strategies that will be employed or considered during final design to minimize adverse visual impacts that may result from the project.

- RTC and/or NDOT will install screening walls in EJ areas to screen views of the proposed improvements, if supported by the affected neighborhoods.
- RTC and/or NDOT will design traffic noise barriers, screening walls, and retaining walls such that they blend into the surrounding environment. This will be accomplished by selecting proper color and material type and texture through coordination with local agencies and stakeholders, and by considering the aesthetic recommendations presented in the *Pyramid Highway Corridor Management Plan* (RTC, 2002).
- RTC and/or NDOT will coordinate with parks staff at the City of Sparks and Washoe County on design of the water quantity/quality basin proposed at Wedekind Park to make consistent with the park's planned uses.
- RTC and/or NDOT will minimize cut/fill areas where feasible and design them to blend in with the surrounding environment to minimize visual impacts. This can be achieved through landscaping and aesthetics, revegetation, the introduction of varied slopes to better match the contours of the hills, and the placement of short walls that would not only shorten the overall slope, but would also break up the continuous flat surface.
- RTC and/or NDOT will minimize the amount of construction disturbance; limit the amount of time that disturbed areas are allowed to remain non-vegetated; avoid disturbance to existing trees, shrubs and vegetation to the maximum extent possible; and revegetate all disturbed areas with native grass and forb species.
- Construction activities are anticipated to occur primarily during the daytime. If nighttime construction is required, procedures will be taken to direct the light inward toward the construction site to minimize glare for residents motorists in the immediate vicinity.

BLM Parcel

RTC and/or NDOT will implement the following measures to reduce visual impacts to the BLM parcels in the Study Area:

Land form mitigation

- Prohibit dumping of excess material on downhill slopes.
- Design alignment to follow existing grades to the extent practicable.
- Shape cuts and fills to appear as natural forms.



- Cut rock areas so forms are irregular.
- Seed areas of cuts and fills with native grasses.
- Place alignments to blend with topographic forms in shape and placement.

Vegetation mitigation

- Retain existing vegetation by:
 - ◆ Using retaining walls on fill slopes where reasonable and feasible.
 - ◆ Reducing surface disturbance.
- Enhance revegetation by:
 - ◆ Choosing native plant species
 - ◆ Stockpiling and reuse topsoil
 - ◆ Fertilizing, mulching, and water replacement vegetation
- Minimize impact on existing vegetation by:
 - ◆ Making partial cuts instead of clear cuts
 - ◆ Using irregular clearing shapes.
 - ◆ Feathering/thin edges.
 - ◆ Controlling construction access
 - ◆ Using existing roads.
 - ◆ Limiting work within construction area.
 - ◆ Minimizing clearing size (i.e., strip only where necessary).
 - ◆ Seeding cleared areas with grass.

Structures mitigation

- Minimize structure contrast by considering:
 - ◆ Using earth-tone paints and stains.
 - ◆ Using natural stone surfaces.
 - ◆ Selecting paint finishes with low reflectivity.
 - ◆ Using native building materials.
 - ◆ Using natural appearing forms to complement landscape.
 - ◆ Taking advantage of natural screening.

3.17 HISTORIC PRESERVATION

It should be noted that consultation with the State Historic Preservation Officer (SHPO) is ongoing, and information and findings presented in this section are subject to change.

This section describes existing historic properties in the Study Area.

For purposes of this EIS, historic properties include historic architecture, historic districts, traditional cultural properties, cultural landscapes, and archaeological resources.

Historic properties are protected under Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended 1992) and other statutes, as well as Section 4(f) as amended and codified in the U.S. Department of Transportation Act of 1966, 49 USC 303 (c). Section 106 of the NHPA requires federal agencies to take into account the effects that their federally funded activities and programs have on significant historic properties, which are those properties that are included in, or eligible for, the National Register of Historic Places (NRHP). The purpose of Section 106 is to balance historic preservation concerns with the needs of federal undertakings. This review process ensures that federal agencies identify any potential conflicts between their undertakings and historic preservation and resolve any conflicts in the public interest.

3.17.1 Methods

3.17.1.1 Initial Phase

The Lead Agencies established an initial Area of Potential Effect (APE) for the project for which a records search would be conducted. The Lead Agencies then initiated a thorough review of state, federal, and local records, which included a literature search of the State Archives in Carson City; research at the Nevada Historical Society; search of business directories and photographs at the Nevada Historical Society; and the deed history at the Washoe County Records and County Assessors offices. This review also included historic Government Land Office records. The Lead Agencies also contacted knowledgeable individuals and local organizations for additional information. An attempt was made to identify all known cultural resource sites and cultural areas of national, state, and local historic interest within the initial APE.

During the initial phase, the Lead Agencies invited agencies, municipalities, tribal governments, and area organizations to serve as historic consulting parties on the Study. The SHPO and the Reno-Sparks Indian Colony (RSIC) agreed to serve as historic consulting parties.

3.17.1.2 Second Phase

After identification of the initial APE and records search, the Study team underwent an alternatives screening process that identified the build alternatives being evaluated as



part of this Draft EIS. Upon identifying these alternatives, FHWA, in consultation with the SHPO, established two APEs for the Study, as follows:

- **Historic Architecture APE.** Shown in Figure 3-50, this APE includes the estimated construction footprint of each build alternative and entire adjacent developed property parcels that could be indirectly influenced by visual, audible, or atmospheric effects. Buildings, structures, objects, districts, traditional cultural properties, and cultural landscapes would be more likely to be subject to indirect as well as direct effects; therefore, the APE for the built and cultural environment is broader than the Archaeological APE to include the potential for such effects.
- **Archaeological APE.** This APE will consist of the anticipated construction footprint and a 100-foot-wide buffer on each side of the construction footprint to encompass direct effects from ground-disturbing activities and any applicable indirect effects. If a build alternative is selected as the Preferred Alternative, the Lead Agencies will conduct an inventory to identify archaeological resources within the Archaeological APE and assess potential impacts and determine necessary mitigation measures. The Final EIS will document those findings. FHWA submitted their recommendation for the APEs to the SHPO, and the SHPO concurred. Please refer to Section 3.17.7 *Summary of Coordination* for more information.

Programmatic Agreement

FHWA, RTC, and NDOT are consulting with the SHPO, other historic consulting parties, and Native American Tribes to identify historic and culturally significant resources, potential project effects, and measures to mitigate effects. In the event that historic and culturally significant resources cannot be fully determined before completion of the EIS process, FHWA is currently preparing a Programmatic Agreement (PA) among the SHPO, NDOT, RTC, and Reno-Sparks Indian Colony that outlines steps to follow after the EIS process to consider the project's effects to these resources (the Draft PA is contained in Appendix A *Agency Coordination*). The Draft PA contains stipulations to consider the effects of the project on historic architectural, cultural, and archaeological resources that may be encountered but were not identified in the EIS process, and to outline the process by which FHWA would meet its Section 106 responsibilities for all individual aspects of the undertaking, including reporting and coordination requirements between the PA parties. The Draft PA contains effects determinations for the NRHP resources identified in the Study Area and defines mitigation measures needed for the currently identified adverse effects. FHWA, SHPO, NDOT, and RTC will comply with all conditions and stipulations in the Draft PA regarding historic architectural, cultural, and archaeological resources. The final, signed PA will be provided in the Final EIS.

1

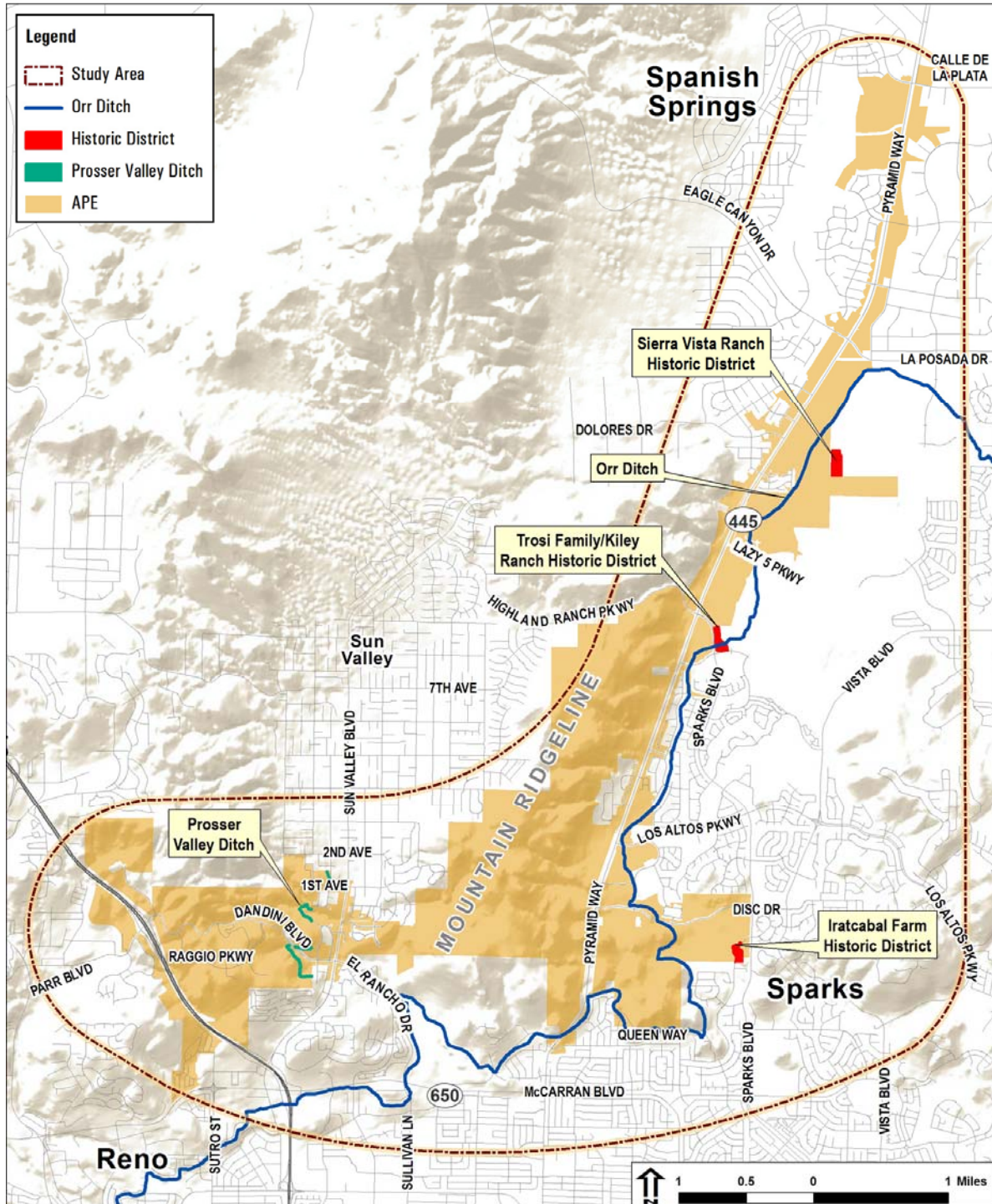


Figure 3-50. NRHP-Eligible Historic Properties in the Historic Architecture APE

2



3.17.2 Existing Conditions

3.17.2.1 Existing Historic Architectural Resources

A historic architectural inventory for the four build alternatives was conducted in support of this EIS. The inventory identified and evaluated historic resources located within the project's Historic Architecture APE and historic linear features potentially impacted by the proposed improvements. Historic resources were evaluated based on their eligibility for listing on the NRHP and were assessed for project effects. The inventory is documented in the *Architectural Inventory: Pyramid Highway/US 395 Connection Project, Sparks, Washoe County, Nevada* (Western Cultural Resource Management, Inc. January, 2012 [Revised December 2012] [Historic Architecture Report]). The Study team conducted the inventory within the alternative corridors in accordance with state and federal standards.

Before conducting field work, the Study team and NDOT obtained construction dates of buildings on parcels located within the Historic Architecture APE from the Washoe County Assessor, and conducted on-line archival research for the APE and Washoe County in general. The research also included secondary sources, such as John Townley's *Tough Little Town on the Truckee*, and previous survey reports that included all or parts of parcels located within the Historic Architecture APE. Information was obtained on early or original land owners from BLM files, Washoe County Assessor files, and Washoe County Clerk and Recorder on-line files.

Of the 641 parcels located in the Historic Architecture APE, 16 parcels contain buildings or structures that are at least 40 years old (i.e., constructed during or before 1971). Three historic linear features, which include segments of the Orr Ditch, Prosser Valley Ditch, and the Old Pyramid Highway Alignment, were evaluated on additional parcels, resulting in a total of 23 parcels. Because those linear features are considered to be engineering structures, they were included in the Historic Architecture APE evaluation.

The SHPO requires a Historic Resource Inventory Form (HRIF) to be completed for resources that are 50 years or older. HRIFs provide detailed information about the site and NRHP eligibility recommendations. Typically, a building or structure must be at

Four criteria are used to determine a property's eligibility for inclusion on the NRHP:

- **Criterion A.** Associated with events that have made a significant contribution to the broad pattern of our history.
 - **Criterion B.** Associated with the lives of persons significant in our past.
 - **Criterion C.** Embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or that possess high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction.
 - **Criterion D.** Has yielded, or may be likely to yield, information important in history or prehistory.
-

least 50 years old to qualify for the NRHP. However, because the environmental review, design, and construction processes can take a number of years, the Study team prepared HRIFs for properties that are 40 years old to increase the “shelf life” of this EIS. Even though a 40-year-old building may have been documented with an HRIF, it would still need to be a minimum of 50 years old, or possess exceptional historic significance, to be eligible for the NRHP. Because HRIFs expire ten years from the date the survey was completed, the properties documented in the HRIFs may need to be reevaluated for NRHP eligibility should the project be prolonged for ten years. In total, the Study team prepared 35 HRIFs for buildings and linear sites at least 40 years old on 23 parcels and locales. The HRIFs are included in the Historic Architecture Report.

The Study team conducted the site survey from public rights-of-way and completed HRIFs from visual information obtained in the field and review of aerial photography. Buildings and structures that were not visually obstructed were photographed.

Previously Documented Eligible Historic Properties

Research identified two previously documented officially NRHP-eligible properties within the Historic Architecture APE – the Prosser Valley Ditch and the Orr Ditch, shown in Figure 3-50. A portion of the Kiley Ranch Historic District (Locus 1) was recommended NRHP-eligible in a 2003 report. Although the report was submitted to the City of Sparks, it had not been submitted to SHPO for formal consultation and concurrence as of this writing. Table 3-44 summarizes the previously documented properties within the Historic Architecture APE and their NRHP status.

Table 3-44. Previously Documented Properties within Historic Architecture APE

Property Name and Address	Construction Date	NRHP Eligibility Status	Report
Kiley Ranch Buildings (Locus 1) 7000 Sparks Boulevard	1930	Recommended eligible; not submitted to SHPO for review	<i>A Class III Cultural Resource Inventory for the Kiley Ranch Project, Spanish Springs Valley, Washoe County, Nevada.</i> Peterson, Robert, and Edward Stoner. 2003.
First Christian Church of Sparks 560 Queen Way	1965	Not eligible, currently in agency review	<i>Historic Architectural Report for the Pyramid Way and McCarran Boulevard Intersection Improvement Projects, Sparks, Washoe County, Nevada.</i> Carrie Chasteen. 2009
Reno Arc Mission Church Building 620 Queen Way	1904	Not eligible, currently in agency review	<i>Historic Architectural Report for the Pyramid Way and McCarran Boulevard Intersection Improvement Projects, Sparks, Washoe County, Nevada.</i> Carrie Chasteen. 2009.
Mat H. Gibbons Home 5745 Wedekind Road	1963	Not eligible, currently in agency review	<i>Historic Architectural Report for the Pyramid Way and McCarran Boulevard Intersection Improvement Projects, Sparks, Washoe County, Nevada.</i> Carrie Chasteen. 2009.



Table 3-44. Previously Documented Properties within Historic Architecture APE

Property Name and Address	Construction Date	NRHP Eligibility Status	Report
Orr Ditch	1872	Considered eligible with contributing and non-contributing segments	Multiple reports beginning in 1993.
Prosser Valley Ditch	Circa 1905	Considered eligible	<i>An Archaeological Inventory of Two Parcels in Cold Springs and North Reno For Western Resource Management's Proposed Land Exchange, Washoe County.</i> Kolvet, Rene and Steve Mehls. 1995.

The Orr Ditch is a 19th century irrigation ditch that traverses the Study Area in a north/south direction. The ditch extends beyond the study area; approximately 12.5 miles of the ditch fall within the Study Area. Because the ditch is a linear site, the condition and integrity of the site varies widely along its length. Most recent recordings (conducted outside of this Study) have identified non-contributing segments due to a lack of integrity caused by modern maintenance and improvements to the ditch that removed elements of its historic fabric.



Orr Ditch Segment in Study Area

As a result, the Study team evaluated ditch segments within the project footprint as part of this Study. In October 2011, the Study team identified and surveyed areas where the project would intersect the Orr Ditch. The field reconnaissance revealed that the Orr Ditch has no integrity in the areas that would be intersected by the project. FHWA determined that segments of the Orr Ditch in the APE are non-contributing elements of the resource.

1 The Prosser Valley Ditch was
 2 determined NRHP-eligible in 1995.
 3 The Study team reevaluated the site
 4 in October 2012 as part of this Study.
 5 Nothing was found in the current
 6 recording to suggest that the overall
 7 resource should be considered
 8 ineligible for the NRHP. The ditch is
 9 considered NRHP-eligible under
 10 Criterion A as representative of the
 11 irrigation mania that occurred from
 12 the 1890s into the early 1900s, and as
 13 representative of the dozens of
 14 speculative irrigation and land



Prosser Valley Ditch Segment in Study Area

15 development projects attempted across Nevada and the West during that time. Current
 16 research has uncovered evidence that supports the ditch's eligibility under Criterion B
 17 for its association with the careers of Reno business leaders and local politicians, such as
 18 Francis G. Newlands, P. L. Flannigan, and Walter H. Harris, and their attempts to use
 19 irrigation as a vehicle for land speculation. The resource does not have any significant
 20 water engineering features or characteristics within the recorded section to merit
 21 eligibility under Criterion C. The current recording did not address the archaeological
 22 potential of the site; therefore, no evaluation was made regarding its eligibility under
 23 Criterion D. Three segments of the remaining ditch are located within the project
 24 footprint. Segments A, B, and C of the Prosser Valley Ditch total approximately 0.93 mile
 25 in length. The reevaluation conducted for this Study found that the two northern ditch
 26 segments (Segments A and B) have lost their integrity due to natural forces and
 27 recreation activities. The southern segment (Segment C) has a discernible contour and
 28 ditch rider's path. It was found that Segment C contributes to the historic significance of
 29 the ditch, while Segments A and B do not because of their lack of integrity.

30
 31 FHWA submitted the NRHP eligibility determinations for the Orr Ditch and Prosser
 32 Valley Ditch to the SHPO, and the SHPO concurred (see Section 3.17.7 *Summary of*
 33 *Coordination*).

34 Newly Documented NRHP-Eligible Historic Properties

35 Four newly documented historic properties in the Historic Architecture APE were
 36 identified and evaluated in the Historic Architecture Report and are included in Figure
 37 3-50. The following paragraphs describe these properties and the NRHP eligibility
 38 recommendations for each:
 39



1. **Sierra Vista Ranch Historic District, No address number, Pyramid Way, Parcel 52803013.**

This historic district is a ranch complex built during the early to mid-20th century and has been in operation since the 1910s. The land for the property was originally purchased from the State of Nevada. Today, the ranch includes a ranch house (constructed 1953), a two-car garage (constructed 1940),



Overview of Sierra Vista Ranch Historic District

a three-car garage (constructed 1949), two sheds (constructed 1915, 1940), a livestock barn (constructed 1954), a barn (constructed 1940), and a grain bin (constructed 1950). The ranch contains five buildings that are not visible from the road, and a modern house. No buildings remain from the ranch's 1910s original construction. The northern portion of the district is heavily vegetated around the buildings, while the southern portion is used for pasture. The historic district boundary matches the parcel boundary and encloses 8.6 acres. The ranch buildings that could be recorded from public roadways indicated that the ranch should be considered significant as containing important examples of typical mid-20th century ranch house and ranch outbuilding construction under Criterion C. The buildings and ranch appear to have the necessary associations to be considered eligible under Criterion A. No associations with local ranching leaders have been identified, and it does not possess the apparent information potential to be recommended eligible under Criteria B or D. The buildings appear to retain sufficient integrity (setting, location, design, feeling, association, and workmanship) to merit NRHP eligibility. In summary, the site is recommended eligible under Criteria A and C.

2. **Trosi Family/Kiley Ranch Historic District, 7000 Sparks Boulevard, Parcel 8383059.**

This historic district is a portion of a ranch complex built during the early 20th century and has been in operation since the 1920s. Today, the ranch includes a ranch cottage (constructed 1920), a large "L"-shaped barn (constructed circa 1940), livestock shed (constructed circa 1940), and a chicken house (constructed 1940). The district's boundary matches the parcel



Trosi Family/Kiley Ranch Historic District

boundary and encloses 6.6 acres. The building complex is associated with the theme of small farms and ranches that made a significant contribution to the evolution of local farming and ranching. The ranch is representative of a once vastly larger

population of the property type (that of small farms and ranches in the Spanish Springs Valley and Reno/Sparks area), which has substantially declined and is rapidly disappearing. In addition, the physical characteristics of the farm/ranch are present both in terms of standing architecture and archaeologically. The district also retains historic integrity in terms of location, design, setting, materials, workmanship, and feeling. The property is, therefore, recommended eligible under Criterion A. Also, the buildings are in their original location, and have no additions or modifications that impair the quality of design, materials, and workmanship (historic fabric). Thus, the site is recommended eligible under Criterion C. Finally, another portion of this ranch (Locus 1) has been previously recommended eligible under Criterion D because of its ability to offer significant information pertinent to the research topics detailed in other reports. This portion of the ranch is outside the current parcel boundary as a result of the subdivision of the ranch and ownership changes during the 2000s. In summary, the site is recommended eligible under Criteria A and C.

3. **Iratcabal Farm Historic District, 2710 Spanish Springs Road, Parcel 3526110.**

This historic district is a farm complex built during the early to mid-20th century, and has been in operation since the 1930s. Today, the farm includes a bunkhouse (constructed 1930), a privy (constructed ca. 1930), a pumphouse (constructed 1945), a mobile home/travel trailer (constructed 1956), a house



Iratcabal Farm Historic District

(constructed 1945), a garage (constructed ca. 1945), a dairy barn (constructed 1930), a shed (constructed 1956), a livestock shed (constructed 1950), and a metal shed (constructed ca. 1960). The district's boundary matches the parcel boundary and encloses 5.18 acres. This farm complex is recommended eligible under Criterion A for its associations with mid-20th century Spanish Springs Valley farming and ranching, and under Criterion C as representative of the construction methods and materials common to western Nevada ranches of the early to mid-20th century. The building complex is strongly associated with the theme of small farms and ranches that made a significant contribution to the evolution of local farming and ranching, which has substantially declined in the area. Because the archaeological potential is presently unknown, it is not considered eligible under Criterion D. In summary, the site is recommended eligible under Criteria A and C.



4. **Old Pyramid Highway Alignment, Parcels 51008247, 8306110, 3518203.** This site is a segment of the original Pyramid Highway built in 1934. It trends north-south, running parallel to the current Pyramid Highway alignment, and is no longer in use. The June 2012 Historic Architecture Report recommended this site as eligible under Criterion A for its association with transportation networks, and Criterion C as representative of construction methods used for transportation networks during the 1930s. However, FHWA reached a different conclusion and determined that the Old Pyramid Highway does not retain sufficient integrity to convey its historical associations, and it is not eligible for the NRHP. Additional information was later obtained supporting FHWA's determination, and the Historic Architecture Report was modified in December 2012 to indicate that the Old Pyramid Highway is recommended as not eligible for the NRHP.



Old Pyramid Highway Alignment

Based on the above assessments, FHWA determined that the three newly documented historic districts are NRHP-eligible and the newly documented Old Pyramid Highway is not eligible for the NRHP. FHWA submitted these determinations to the SHPO and the SHPO concurred (see Section 3.17.7 *Summary of Coordination*).

Summary of NRHP-Eligible Resources Identified in Study Area

The Lead Agencies identified the following NRHP-eligible resources within the project's APE that may potentially be affected by the project, which are shown on Figure 3-50.

- Sierra Vista Ranch Historic District
- Trosi Family/Kiley Ranch Historic District
- Iratcabal Farm Historic District
- Prosser Valley Ditch

Congressional Trail

The National Park Service (NPS) maintains a National Historic Trails database that includes all Congressional Trail route designations. According to NPS data obtained in August 2012, portions of the California Trail are present within the Study Area. Disclosure of the exact trail location is not possible due to confidentiality agreements with the NPS, but trail segments are located near US 395. The trail corridor location provided by NPS was placed into GIS and compared to the project footprint, and a site survey was conducted on August 15, 2012. Based on examination of the maps and

walkover survey, it appears that no portions of the California Trail route are located within the project footprint.

3.17.2.2 *Existing Archaeological Resources*

The Study team conducted a preliminary walkover survey of the build alternatives to identify potential archeological resources. This survey identified approximately 100 sites with refuse scatters/dumps, two-track road systems, prospect pits/trenches, mining complexes, and ditches.

On preliminary review, the nature of these sites likely makes them important for what can be learned from data recovery, if they are found to be eligible after site recordation. These sites are expected to have minimal value for preservation in place because they do not embody other values besides data and are not considered sites of transcendent importance to archaeology. Partly based on the results of the walkover survey, the Study team will conduct an intensive pedestrian archaeological survey after a Preferred Alternative is selected (if a build alternative is selected as the Preferred Alternative). The area surveyed will include the Preferred Alternative right-of-way limits within the Archaeological APE, potential temporary construction areas, such as staging areas and haul routes, and the entire RSIC parcel at Eagle Canyon Drive and Pyramid Highway. The Study team will conduct field recording and reporting procedures in accordance with procedures established by the Nevada BLM and SHPO. Qualified cultural resource personnel will conduct field investigations, walking in transects spaced no wider than 15 meters apart to achieve 100 percent visual ground coverage. All cultural research personnel will meet the Secretary of the Interior's Professional Qualification Standards.

The Study team will record and evaluate archaeological sites for NRHP eligibility using the Intermountain Archaeological Computer System (IMACS) format. NRHP evaluations will be supported by the placement of shovel probes in each cultural resource site location to determine depth, the extent of diagnostic materials, existence of features, and other significance standards set forth in the NRHP criteria (36 CFR 60.4) for reporting and evaluating archaeological sites. Any isolated artifacts will be recorded in the field, illustrated on a USGS 7.5-minute map, and documented in an archaeological inventory report that will be prepared for the Study.

3.17.3 Historic Property Impacts

The Study team attempted to avoid and minimize impacts to NRHP-eligible resources during the preliminary design process. This section describes anticipated impacts to NRHP-eligible resources as a result of the project. The Lead Agencies also assessed impacts to NRHP-eligible resources in accordance with Section 4(f) of the USDOT Act of 1966, as amended. Chapter 5.0 *Section 4(f) Evaluation* contains additional information and illustrations of direct impacts described below. The Lead Agencies will assess impacts to archaeological resources if a build alternative is selected as the Preferred Alternative, and they will document the findings in the Final EIS.



3.17.3.1 No-Action Alternative

Historic Property Impacts

The No-Action Alternative would result in no new impacts to the identified NRHP-eligible resources.

3.17.3.2 Build Alternatives

Impacts Common to All Build Alternatives

All build alternatives would impact three NRHP-eligible resources in the same manner, as described below:

1. **Sierra Vista Ranch Historic District.** Each build alternative would include construction of a grade-separated intersection at the crossing of Pyramid Highway and Dolores Drive, and a feeder road running southeast from the new intersection that would terminate less than 15 feet from the southwestern corner of the Sierra Vista Ranch Historic District boundary. The buildings are located 700 to 900 feet north-northeast of the terminal point of the new road and approximately 2,000 feet from the elevated intersection. The build alternatives would not alter, remove, or destroy any of the NRHP-eligible buildings at the site or take lands from the historic district. Further, the build alternatives would not change the character of use or physical features within the site's setting that contribute to the historic significance of the site's buildings. The terrain between the site and the Pyramid Highway is relatively level. Without modification, the build alternatives would have introduced new visual elements into the setting of the site and new audible elements into the site's setting as a result of anticipated traffic increases that would diminish the integrity of the property's significant historic features. However, these visual and audible effects will be avoided by implementation of avoidance measures described in Section 3.17.4.1.
2. **Trosi Family/Kiley Ranch Historic District.** The build alternatives would include construction of a six-lane elevated freeway to replace the existing Pyramid Highway that starts at the intersection of the highway and Sparks Boulevard. The elevated freeway is planned to be five to six feet above ground level, except at interchanges where the projected height is 25 to 30 feet above ground level. The Pyramid Highway and Sparks Boulevard interchange and the elevated freeway would be located between 800 and 1,300 feet northwest of the Trosi Family/Kiley Ranch site and would change the ground-level views from the ranch site looking west and northwest. The existing topography is relatively level from the site to the Pyramid Highway, and views of the project would not be obscured. The build alternatives would not alter, remove, or destroy any of the NRHP-eligible buildings or take lands from the historic district. The build alternatives would not change the character of use or physical features within the site's setting that contribute to the historic significance of any of the site's buildings. Without modification, the build

alternatives would have introduced new audible elements to the site as a result of anticipated traffic increases that would diminish the integrity of the property's significant historic features. However, these visual and audible effects will be avoided by implementation of avoidance measures described in Section 3.17.4.1.

3. **Iratcabal Farm Historic District.** Each build alternative would include a widening of Disc Drive, located downhill and 1,600 to 2,300 feet from the Iratcabal Farm Historic District boundary. The build alternatives would not alter, remove, or destroy any of the NRHP-eligible buildings or take lands from the historic district. The build alternatives would not change the character of use or physical features within the site's setting that contribute to the historic significance of any of the site's buildings. The widened Disc Drive would likely be more visible than the existing roadway, introducing a larger visual intrusion into the setting of the site. Without modification, the build alternatives would have introduced new audible elements to the site as a result of anticipated traffic increases that would diminish the integrity of the property's significant historic features. However, these visual and audible effects will be avoided by implementation of avoidance measures described in Section 3.17.4.1.

Because no portions of the California Trail are located within the project footprint, no impacts to the trail would occur under any build alternative.

Alternative 1

In addition to impacts common to all build alternatives, Alternative 1 would impact the Prosser Valley Ditch. Widening Dandini Boulevard where it currently crosses Segment C of the ditch to provide safety improvements (a center median and wider shoulders) would impact approximately 25 feet of this resource.

Alternative 2

In addition to impacts common to all build alternatives, Alternative 2 would result in the same impacts to the Prosser Valley Ditch as described under Alternative 1.

Alternative 3

In addition to impacts common to all build alternatives, Alternative 3 would impact the Prosser Valley Ditch. Where Dandini Boulevard currently crosses Segment C of the ditch, the roadway would be widened to accommodate safety improvements (a center median and wider shoulders) and be realigned to match the design of the new interchange west of Sun Valley Boulevard. These improvements would impact approximately 120 feet of this resource.

Alternative 4

In addition to impacts common to all build alternatives, Alternative 4 would impact the Prosser Valley Ditch. Where Dandini Boulevard currently crosses Segment C of the ditch, the roadway would be widened to accommodate safety improvements (a center



median and wider shoulders) and be realigned to match the design of the new interchange west of Sun Valley Boulevard. These improvements would impact approximately 90 feet of this resource.

3.17.4 Measures Undertaken to Avoid or Minimize Impacts

During preliminary design, the Study team worked to avoid or minimize impacts to historic resources. Measures to avoid or minimize impacts are summarized below.

3.17.4.1 All Build Alternatives

Trosi Family/Kiley Ranch Historic District. The initial design at Pyramid Highway and Sparks Boulevard would directly impact a small area in the northwest portion of the district. The Study team modified the design to eliminate the direct impact. To avoid visual and audible impacts to this resource, RTC and/or NDOT will introduce landscaping in the proposed intersection and highway transition design to form a visual break between the district and Pyramid Highway. This may involve a combination of earthen berms and one or more lines of trees planted along the western and northern boundaries of the district to form a visual barrier between the district and the highway. RTC and/or NDOT will complete a 35mm photo study of the district and its built environment that includes the visual setting of the district, paying special attention to the setting to the west and northwest to document the existing setting for posterity.

Sierra Vista Ranch Historic District. To avoid visual and audible impacts to this resource, RTC and/or NDOT will plant one or more lines of trees along the western boundary of the district to form a living visual barrier between the district and Pyramid Highway. RTC and/or NDOT will complete a 35mm photo study of the district and its built environment that includes the visual setting of the district in a westerly direction to document the existing setting for posterity.

Iratcabal Farm Historic District. To avoid visual and audible impacts to this resource, RTC and/or NDOT will plant one or more lines of trees along the western and northern historic district boundaries to create a visual barrier between the farm and the highway improvements. RTC and/or NDOT will complete a 35mm photo study that the district that focuses on its built environment and the visual setting of the district in a westerly direction toward the Pyramid Highway and toward the north and northwest looking at the viewshed that includes Disc Drive in order to document the existing setting for posterity.

3.17.4.2 Alternative 1

Prosser Valley Ditch. By keeping the Dandini Boulevard connection to Sun Valley Boulevard in its current location, impacts to the ditch were minimized. Also, the initial design for Alternative 1 would have impacted approximately 305 linear feet of the ditch. However, by adding a retaining wall along both sides of the roadway, impacts to the

ditch from the initial fill slopes were reduced by 280 feet, resulting in a total impact of 25 feet.

3.17.4.3 *Alternative 2*

Prosser Valley Ditch. By keeping the Dandini Boulevard connection to Sun Valley Boulevard in its current location, impacts to the ditch were minimized. Also, the initial design for Alternative 2 would have impacted approximately 305 linear feet of the ditch. However, by adding a retaining wall along both sides of the roadway, impacts to the ditch from the initial fill slopes were reduced by 280 feet, resulting in a total impact of 25 feet. Additionally, Alternative 2 originally impacted the northern portion of Segment C as a result of the cut slope from the east bound off-ramp from the US 395 Connector. The cut slope was eliminated through the use of a cut wall, eliminating 200 feet of impact to the ditch in that area.

3.17.4.4 *Alternative 3*

Prosser Valley Ditch. By adding retaining walls along both sides of the realigned Dandini Boulevard, impacts to the ditch were reduced by approximately 230 feet, resulting in a total impact of 120 feet.

3.17.4.5 *Alternative 4*

Prosser Valley Ditch. By adding retaining walls along both sides of the realigned Dandini Boulevard, impacts to the ditch were reduced by approximately 100 feet, resulting in a total impact of 90 feet.

3.17.5 Determination of Effect

FHWA has determined that the proposed action would result in the following effects to NRHP-eligible properties identified within the project's APE. SHPO concurrence on effect determinations will be obtained when the SHPO signs the PA, which is currently being drafted (see Appendix A *Agency Coordination*). The finalized, signed PA will be included in the Final EIS.

- **Trosi Family/Kiley Ranch Historic District, Iratcabal Farm Historic District, and Sierra Vista Ranch Historic District.** FHWA determined that the visual and audible effects to these resources as a result of the project will be avoided by undertaking measures described in Section 3.17.4.1. Therefore, FHWA has determined that the proposed action would result in No Adverse Effect to these resources.
- **Prosser Valley Ditch.** Because NRHP-contributing segments of this resource would be destroyed by the project, FHWA has determined that the proposed action would result in an Adverse Effect to this resource.



3.17.5.1 Summary of Effects

Table 3-45 summarizes effects to the NRHP-eligible resources in the Study area as a result of the proposed action.

Table 3-45. Summary of Effects to Historic Resources

Resource	Effects by Alternative				
	No-Action Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Sierra Vista Ranch Historic District	No effect	No Adverse Effect	Same as Alt. 1	Same as Alt. 1	Same as Alt. 1
Trosi Family/Kiley Ranch Historic District	No effect	No Adverse Effect	Same as Alt. 1	Same as Alt. 1	Same as Alt. 1
Iratcabal Farm Historic District	No effect	No Adverse Effect	Same as Alt. 1	Same as Alt. 1	Same as Alt. 1
Prosser Valley Ditch	No effect	25 feet Adverse Effect	25 feet Adverse Effect	120 feet Adverse Effect	90 feet Adverse Effect

3.17.6 Historic Property Mitigation

3.17.6.1 Historic Architecture

To mitigate adverse effects to the Prosser Valley Ditch, RTC and/or NDOT will complete an extensive 35mm photo study of the ditch segments impacted prior to any disturbance. RTC and/or NDOT will complete a report following the Nevada State Historic Preservation Office Documentation Standards for Historical Resources of Local and State Significance, September 2009 edition. The report will document the history of the entire ditch and place the impacted segments within the context of the overall irrigation system. RTC and/or NDOT will consider signage or other media for public education about the ditch and the significance of irrigation in Nevada at some location near the ditch.

For effects to historic or culturally significant resources determined following completion of the EIS process, FHWA, NDOT, RTC, and RSIC will coordinate and develop mitigation measures as stipulated in the Programmatic Agreement that is currently being drafted, as discussed in Section 3.17.1.2. The Draft PA is in Appendix A *Agency Coordination*.

To mitigate temporary impacts during construction, RTC and/or NDOT will undertake the following measures:

- Minimize area of disturbance to the extent practicable.
- Control construction access.
- Limit work within construction area.
- Revegetate disturbed areas as soon as practicable, consistent with adjacent landscape features and with desirable native plant species.

Archaeological Resources

The Lead Agencies will assess measures to mitigate impacts to archaeological resources if a build alternative is selected as the Preferred Alternative, and they will document the findings in the Final EIS.

3.17.7 Summary of Coordination

FHWA consulted with the SHPO, tribal governments, and historic consulting parties throughout the EIS process and Section 106 consultation, as described below. Appendix A *Agency Coordination* contains correspondence referenced in this section.

3.17.7.1 Historic Consulting Parties

As part of the scoping process for this project, the Lead Agencies invited the following agencies and stakeholders to participate as Section 106 consulting parties to identify any concerns regarding the potential effects of the project on cultural resources (see letters dated February 5, 2009).

- BLM
- Center for Basque Studies
- City of Reno, Nevada
- City of Sparks, Nevada
- Desert Research Institute (DRI)
- Historic Reno Preservation Society (HRPS)
- Nevada Historical Society
- Nevada Humanities-Reno Office
- Nevada State Museum
- Pyramid Lake Paiute Tribe
- RSIC
- Sparks Heritage Museum
- SHPO
- Washoe Tribe of California and Nevada
- Washoe County



The SHPO and RSIC accepted the invitation to serve as Section 106 consulting parties. The Pyramid Lake Paiute Tribe responded and had no objections to the project as planned and based on the information provided to them. They also requested further consultation to address their concerns and requested copies of environmental and cultural documents prepared for the Study. No other comments were received. Because of the small number of responses, the Study team attempted to contact all non-respondents by telephone to inquire about their future participation and any specific concerns. The Study team contacted several of the invited parties, but none agreed to serve as Section 106 consulting parties.

The Lead Agencies provided the Section 106 consulting parties the opportunity to comment on historic findings, impacts, and mitigation measures throughout the EIS process. The Section 106 consulting parties will indicate their concurrence on effects determinations upon signing the PA. The current draft of the PA is found in Appendix A *Agency Coordination*.

3.17.7.2 Area of Potential Effect

The FHWA sent a letter to the SHPO on May 18, 2011 describing the Study's APEs and requested concurrence. FHWA met with the SHPO on June 16, 2011 to discuss clarification and additional information requested by the SHPO. Following the meeting, FHWA sent a letter to the SHPO on September 8, 2011, that provided additional information and requested concurrence on the APEs. SHPO's concurrence was received on October 11, 2011.

3.17.7.3 NRHP Eligibility and Effect Determinations

FHWA determined that the three newly documented historic districts discussed in 3.17.2.1, are NRHP-eligible and the newly documented Old Pyramid Highway is not eligible for the NRHP. FHWA provided these determinations to the SHPO and requested concurrence in a letter dated February 28, 2012. The SHPO requested additional information on March 28, 2012, and FHWA provided the information requested on August 3, 2012. On August 31, 2012, the SHPO concurred with FHWA's eligibility determinations for all resources except the Old Pyramid Highway, and recommended treating the site as unevaluated.

FHWA continued to consult with the SHPO concerning the Old Pyramid Highway, which included a site visit with the SHPO, collecting additional information on the historic context for the Old Pyramid Highway, and researching other old highway segments located in nearby Wedekind Park that were previously determined ineligible for the NRHP by the BLM. FHWA provided this additional information to the SHPO and requested concurrence on FHWA's determination of non-eligibility for the Old Pyramid Highway on March 7, 2013. The SHPO concurred in a letter dated April 3, 2013.

The Draft PA described in Section 3.17.6 *Historic Property Mitigation* contains effects determinations for the NRHP resources identified in the Study Area and measures that RTC and/or NDOT will undertake to mitigate effects to those resources. By signing the PA, the SHPO and Section 106 consulting parties will provide concurrence on the effects determinations. Section 106 consultation documentation and the Draft PA is provided in Appendix A *Agency Coordination*. The final, signed PA will be provided in the Final EIS.

3.17.7.4 Tribal Consultation

The Lead Agencies sent letters of inquiry on February 5, 2009, with response forms to the tribes listed below. The letters were followed by telephone calls and meetings.

- Pyramid Lake Paiute Tribe
- Washoe Tribe of California and Nevada
- RSIC

The RSIC agreed to serve as a participating agency in the Study in an e-mail dated April 14, 2008. The Pyramid Lake Paiute Tribe signed and returned the response form on February 11, 2009, indicating that they have no objection to the project as planned and based on the information provided. They requested further consultation to address their concerns.

Based on ongoing discussions regarding effects to the RSIC property, FHWA invited the RSIC and the BIA to serve as cooperating agencies on March 29, 2012. The BIA accepted on May 1, 2012 and the RSIC accepted on July 9, 2012. The RSIC and BIA served as cooperating agencies in this study from that point on.

The Study team coordinated with the RSIC during the EIS process regarding the tribe's property located near Pyramid Highway and Eagle Canyon Drive. Meetings with the RSIC are summarized below and documented in Appendix A *Agency Coordination*.

- January 19, 2010, meeting. Discuss the tribe's concerns, study alternatives, EIS process, Section 106 status, RSIC's plans for parcel located near Pyramid Highway and Eagle Canyon Drive.
- June 17, 2011, meeting. Project overview and background, EIS alternatives, effects to RSIC property near Eagle Canyon, economic, traffic noise, traffic increases, opportunity for project public art or landscape theme.
- December 9, 2011, meeting. Project update and overview, Section 106 update, EIS alternatives, BIA contact, effects to RSIC parcel.
- January 31, 2012, meeting. Held at BIA offices with BIA. Project status update, right-of-way issues, BIA involvement, economic development.



- April 26, 2012, meeting. Project status update, further discussion on right-of-way concerns, BIA involvement, and economic development.

RSIC Parcel

Through consultation conducted during this Study, RSIC and BIA have voiced concerns to FHWA about potential impacts to cultural resources in general, and to the RSIC parcel located at Eagle Canyon Drive and Pyramid Highway in the northern portion of the Study Area, including potentially adverse social and economic impacts as a result of right-of-way required from the site and access changes to the site. The RSIC feels that additional analysis of economic and social impacts from the project be included in the EIS in order to identify mitigation measures. They are concerned that the proposed project would hinder their ability to negotiate with potential commercial tenants in the period between the Final EIS and construction of the project, which may not occur for several years. The RSIC has noted that the commercial site will not only generate revenues to support essential government services, it is also planned to provide employment opportunities to low-income Native American residents from the Hungry Valley community.

Regarding the RSIC's concerns about impacts to cultural resources in general, the Study team has coordinated with the RSIC on the Section 106 approach throughout the study. A result of this coordination was the Study Team's commitment to conduct an intensive pedestrian archaeological survey of the entire RSIC parcel after a Preferred Alternative is identified. The area surveyed will include the Preferred Alternative right-of-way limits within the Archaeological APE, potential temporary construction areas, such as staging areas and haul routes, and the entire RSIC parcel at Eagle Canyon Drive and Pyramid Highway. This Draft EIS summarizes the Section 106 activities conducted to-date, including eligibility and effect determinations on historic architecture, and proposed measures to mitigate effects. It also includes the Class I records search for archaeological resources, and results of the archaeological walk-over survey. The Study Team has provided RSIC with this Class I and walkover survey information and can provide the historic architecture information upon request.

To address RSIC's and BIA's concerns regarding social and economic impacts to the RSIC site, FHWA prepared and submitted a memorandum to the RSIC and BIA on December 28, 2012 (see Appendix A *Agency Coordination*). The memorandum discussed that the right-of-way impacts described in this Draft EIS are based on a preliminary level of design, which provides an adequate level of detail to evaluate impacts for the Draft EIS. Right-of-way requirements in this Draft EIS are conservative, and represent a worst case scenario so that design refinements that could occur during the final design process would fall within the project footprint of the Draft EIS. The memorandum noted that all reasonable opportunities to minimize the acquisition of or impacts to the RSIC parcel would be taken during the final design process. If it were determined that right-of-way is needed beyond that described the EIS as a result of refinements made during the final design process, the FHWA would be required to revisit the NEPA process, including

coordination with the RSIC and BIA. Because the proposed project would be implemented in stages, beginning with the southern portion of the project, it is anticipated that final design for the northern portion of the Study Area, where the RSIC parcel is located, would not occur for ten or more years, depending on funding availability for design and construction.

The memorandum summarized noise impacts, air quality impacts, right-of-way impacts (3.05 acres acquired from the 22-acre RSIC parcel), and right-of-way mitigation. It described how the proposed access changes and traffic increases under all build alternatives would likely result in a net benefit to businesses in the area by improving capacity, easing access to the general area, and increasing exposure to the future commercial shopping area the RSIC has planned for the parcel. The memorandum also noted that an increase in property value of the RSIC parcel may occur as a result of the increased exposure and decreased traffic congestion along Eagle Canyon Drive and Pyramid Highway, leading to better access because of the traffic relief that the new facility may provide along Eagle Canyon Road and Pyramid Highway. In addition, the new access point provided under all build alternatives for the future commercial shopping area currently planned on the RSIC parcel could also result in an increase in property value for the parcel. The memorandum cited several studies that support these assertions.

The memorandum noted that any future improvements that may result from approval of this EIS in no way precludes the RSIC or any other entity from immediate or long-term commercial or residential property development. As is the case with all property acquisition for public right-of-way, at the time that the right-of-way needs are determined, the entity responsible for acquiring the property would, in accordance with the Uniform Act, assess the value of the parcel that would include any existing improvements and impacts to those improvements.

Section 3.5.4.1 summarizes the requirements for tribal trust land acquisition, and refers the reader to the *BIA Procedural Handbook Grants of Easement for Right-of-Way on Indian Lands* for more information.

FHWA, NDOT, and the RTC will continue to consult with the RSIC and BIA throughout the EIS process and, if a build alternative is selected as the Preferred Alternative, the final design process and construction phase.



3.18 HAZARDOUS WASTE

Hazardous waste is defined as any waste product that is considered flammable, corrosive, reactive, or toxic. Hazardous waste can be found in various forms and can originate from a variety of sources. Examples of potential sites that may contain hazardous waste include, but are not limited to, landfills, service stations, industrial areas, and railroad corridors. When developing a transportation project, it is important to be aware of known hazardous waste sites so they can be avoided or their impacts minimized.

Hazardous waste may be encountered during the construction of the project. Therefore, it is important to identify properties that may contain contamination prior to right-of-way acquisition and construction.

3.18.1 Regulatory Standards

The federal government regulates hazardous wastes through the Resource Conservation and Recovery Act (RCRA) of 1976 and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, and by implementing federal regulations in Title 40 of the CFR.

The State of Nevada regulates hazardous materials and wastes through sections of the Nevada Revised Statutes and Nevada Administrative Code, Chapter 459. The NDEP administers the underground storage tank (UST) program for the state. In addition, the NDEP is responsible for clean-up of hazardous materials incidents. The Nevada Department of Public Safety, Hazmat Permitting Office is responsible for the permitting and regulating hazardous materials.

3.18.2 Methods

This assessment was performed in general accordance with ASTM E1527 – 05 (Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process). The Study Area boundary identified for assessment of potential hazardous waste concerns (area of assessment) included a buffer approximately 0.25-mile from each of the four build alternatives. The site reconnaissance of properties/hazardous material sites presented in a report from Environmental Database Resources Inc. (EDR) in 2011 was limited to a visual inspection of property conditions from public rights-of-way to confirm what was listed in the regulatory databases and to document the occurrence of potential recognized environmental conditions (REC), if observed. RECs are the presence or likely presence of hazardous substances, hazardous waste, or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any such substances into structures on the property or into the ground,

A “recognized environmental condition” (REC) is defined as the presence or likely presence of hazardous materials or petroleum products on a property under conditions that indicate an existing or past release, or a material threat of a release.

groundwater, or surface water of the property. The term RECs is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

The *Pyramid Highway and US 395 Connection Draft EIS Hazardous Waste Technical Memorandum* (CH2M Hill, 2012) contains details on methods used, as well as assessment findings.

3.18.3 Existing Conditions

The Study team performed an assessment to screen for sites with known or suspected RECs that would likely be impacted by project construction.

3.18.3.1 Database Search

The environmental database report obtained from Environmental Data Resources Inc. identified 89 sites listed in federal and state environmental databases in the area of assessment. These are listed in Table 3-46.

Table 3-46. Summary of EDR-Listed Sites

		Findings	
Database	Definition	Property	Address
Federal Records			
RCRA-LQG	Large Quantity Generator	Costco Wholesale #646	4810 Galleria Pkwy.
RCRA-SQG	Small Quantity Generator	Home Depot #3313	4655 Galleria Pkwy.
		Desert Research Institute	7010 Dandini Blvd.
		Truckee Meadows Community College	7000 Dandini Blvd.
		Walmart Supercenter #3729	5065 Pyramid Lake Rd.
		CVS Pharmacy #4691	5151 Sparks Blvd.
RCRA-CESQG	Conditionally Exempt Small Quantity Generator	Miracle Method Inc.	215 Desert Rose Dr.
		Parr Blvd. Shop Washoe Cnty Equ.	911 Parr Blvd.
		Wildcreek Golf Course	3500 Sullivan Lane
RCRA-Non-Gen	Non Generator	Save Mart Supermarkets DBA ALB	9750 Pyramid Hwy.
		Superior Performance	5200 Sun Valley Blvd.
		Scolari's Food and Drug Co.	1350 Disc. Dr.
		Longs Drug Store #213	175 Disc Dr.
ERNS	Emergency Release Notification System	475 Summerhill	475 Summerhill
		7010 Dandini Blvd	7010 Dandini Blvd.
		7010 Dandini Blvd	7010 Dandini Blvd.
		7010 Dandini Blvd	7010 Dandini Blvd.
		3261 Reno Vista Drive	3261 Reno Vista Dr.
		Truckee Meadows Optical	2970 Sutro St.



Table 3-46. Summary of EDR-Listed Sites

Database	Definition	Findings	
		Property	Address
US CDL	Clandestine Drug Labs	5245 Carrol Drive	5245 Carrol Dr.
MINES	Mines Master Index File	Granite Construction Comp	US 395 at Parr Blvd.
		Marietta Materials	11059 Pyramid Hwy.
FTTS	FIFRA/TSCA Tracking System	Wright Outdoor Nursery	7655 Pyramid Hwy.
		Reigning Cats & Dogs	1338 Disc Dr.
HIST FTTS	Historical Sites FIFRA/TSCA Tracking System	Wright Outdoor Nursery	7655 Pyramid Hwy.
FINDS	Facility Index System	Alyce Taylor Elementary School	252 Egyptian Dr.
		Miracle Method Inc	215 Desert Rose Dr.
		Save Mart Supermarkets DBA ALB	9750 Pyramid Hwy.
		Yvonne Shaw Middle School	600 Eagle Canyon Dr.
		Hidden Canyon	555 Highland Ranch Pkwy.
		Wright Outdoor Nursery	7655 Pyramid Hwy.
		Wal-Mart Supercenter #3729	5065 Pyramid Lake Rd.
		CVS Pharmacy #4691	5151 Sparks Blvd.
		Miguel Sepulveda Elementary School	5075 Ion Drive
		Superior Performance	5200 Sun Valley Blvd.
		Home Depot #3313	4655 Galleria Pkwy.
		Scolari's Food and Drug Co.	1350 Disc. Dr.
		Longs Drug Store #213	175 Disc Dr.
		Desert Research Institute NNSC	7010 Dandini Blvd.
		Truckee Meadows Community College	7000 Dandini Blvd.
		TMCC Magnet High School	7000 Dandini Blvd.
		Parr Blvd. Shop Washoe Cnty. Equ.	911 Parr Blvd.
		Jerry Whitehead Elementary School	3570 Waterfall Dr.
		RDW Newco Inc.	1632 Sprucemont St.
		Rod and Lucile Stevens	1632 Sprucemont St.
US HIST CDL	Historic Clandestine Drug Labs	Lena Juniper Elementary School	225 Queen Way
		Wildcreek Golf Course	3500 Sullivan Ln.
State and Local Records	Hazardous Waste Substance	5245 Carrol Drive	5245 Carrol Dr.
		305 Sugar Hill Drive	305 Sugar Hill Dr.
		Edwina Wilcox Property	1485 East Ranger Rd.
		Truckee Meadows Community College	7000 Dandini Blvd.
		Granite Construction Comp	US 395 at Parr Blvd.
		Johnson Residence	2300 Shadow Lane
		Wallace Kurtz Property	5555 Silver Hills Crcl.
NV SHWS		William Van Meter Property	5745 Wedekind Rd.

Table 3-46. Summary of EDR-Listed Sites

Database	Definition	Findings	
		Property	Address
NV SWRCY	Recycling Facilities	Allyson Adams	3370 Martini Rd.
		Harrison Residence	320 Queens Way
		Lena Juniper Elementary School	225 Queen Way
		Almost Home Daycare	3345 Pyramid Way
		Verizon Wireless	105 Los Altos Pkwy #101
NV UST	Underground Storage Tank	Terrible's #830	8995 La Posada Dr.
		7-Eleven #32822	15 Eagle Canyon Dr.
		Truckee Meadows Station #7	500 Rockwell Dr.
		Reno-Sparks Indian Colony	7655 Pyramid Hwy.
		Nevada Hereford Ranch	7000 Pyramid Lake Rd.
		Dad's Quick mart	5212 Sparks Blvd.
		Tholke Property	5275 Leon Dr.
		Super Buy Market	5200 Sun Valley Dr.
		Golden Gate Petroleum	5190 Sun Valley Dr.
		Washoe County Emergency Op Center	5195 Spectrum Blvd.
		Costco Wholesale #646	4810 Galleria Pkwy.
		Quick Stop Market #160	140 West 1 st Ave.
		Terrible's #810	1390 Disc Dr.
		7- Eleven #20989—Closed	4850 Sun Valley Dr.
		Desert Research Institute NNSC	7010 Dandini Blvd.
		Truckee Meadows Community College	7000 Dandini Blvd.
		Washoe County Sheriff's Office	911 Parr Blvd.
		7-Eleven #32644	900 Parr Blvd.
		Rainbow Market	4696 Sun Valley Blvd
		D'Andrea Market	2995 Vista Blvd.
CA HAZNET		Wildcreek Golf Course	3500 Sullivan Lane
		Scolari's Food and Drug Co.	1350 Disc Dr.
		Desert Research Institute NNSC	7010 Dandini Blvd.
		Truckee meadows Community College	7000 Dandini Blvd.
NV NPDES	National Pollutant Discharge Elimination System	Parr Blvd. Shop Washoe County Equ.	911 Parr Blvd.
		Reno-Sparks Conv/Wildcreek Golf Course	3500 Sullivan Lane
NV TIER 2/HMRI		Wal-Mart Stores Inc.	5065 Pyramid Lake Rd.
		AT&T Nevada	4690 Sparks Blvd.



Table 3-46. Summary of EDR-Listed Sites

Database	Definition	Findings	
		Property	Address
Tribal Records			
INDIAN UST	Underground Storage Tank	Reno-Sparks Indian Colony	7655 Pyramid Lake Hwy.

Source: Environmental Data Resources Inc, 2011.

Notes:

NL – not listed

Reference Document includes:

EDR DataMap® Environmental Atlas: Inquiry Number 02166699.1r, 25 March 2008

EDR DataMapTM Environmental Atlas: Inquiry Number 3209644.1s, 21 November 2011

RCRA-LQG – Resource Conservation and Recovery Act (RCRA) Large Quantity Generator

RCRA-SQG – RCRA Small Quantity Generator

RCRA-CESQG – RCRA- Conditionally Exempt Small Quantity Generator

RCRA-NonGen – RCRA – Non Generator

ERNS – Emergency Response Notification System

US-CDL – United States – Clandestine Drug Lab (included HIST CDL list dated 09/01/2007)

MINES – Mines Master Index File

FTTS – FIFRA/TSCA Tracking System

FINDS – Facility Index System

SHWS – State Hazardous Waste Site

NV- SWRCY – Registered Recycling Facility

NV-UST – Underground Storage Tank

CA HAZNET – California Hazardous Waste Manifests

NV-NPDES – National Pollutant Discharge Elimination System

NV-HMRI – Hazardous Chemical Inventory Submittal Requirement

Indian UST – Underground Storage Tanks located on Indian lands

3.18.3.2 Historic Aerial Review

The Study team obtained historic U.S. Geological Service (USGS) aerial photographs from 1946, 1956, 1973, 1980 and 1999 and reviewed them to support the site reconnaissance. Although the flight altitude did not yield information on potential historic location- or activity-specific concerns within the area of assessment, larger-scale RECs were not observed. The historic aerial photographs included a series of three photographs from 1946, 1956, and 1980; two photographs from 1973; and four photographs from 1999. The City of Reno is depicted on the 1946 aerials. However, land uses along Disc Drive, Pyramid Highway, Sun Valley Boulevard, and US 395 corridors were mostly of undeveloped lands until the 1960s to 1970s. The 1973 aerial depicts residential and commercial development along the corridors. The 1999 aerials depict the area of assessment similar to that of present day.

3.18.3.3 Site Reconnaissance

The Study team conducted site reconnaissance to:

- Confirm property/hazardous material site use and addresses indicated in the EDR report.
- Identify addition properties not listed in the EDR report that could potentially have RECs.

- Observe visible indications of RECs from public rights-of-way that could potentially impact the build alternatives.

This reconnaissance did not identify any properties/hazardous material sites not listed in the EDR report. The Pyramid Highway and US 395 Connection Draft EIS Hazardous Waste Technical Memorandum contains the Study team's site reports, photographs, and observations.

3.18.4 Hazardous Materials Impacts

Each of the listed properties and hazardous material sites discussed above could, to varying degrees, affect the environment and the project. The relative degree of risk depends on the alternative selected, the type of property/hazardous material site, whether or not spills/releases were observed and/or documented, and the history of compliance and/or regulatory enforcement actions taken. To categorize these relative risks, each database was qualitatively ranked (higher to lower), with the number of properties/hazardous material sites reported for each category. Table 3-47 summarizes listed sites and relative risk rankings.

Of the 84 database entries shown on Table 3-47, 37 properties have a High relative risk, most of which are related to UST sites. There are 16 sites ranked in the Moderate relative risk category. These relative risk rankings reflect a higher likelihood for environmental impairment than properties/hazardous material sites falling into the Low relative risk category.

Table 3-47. Summary of Listed Sites and Relative Risk Ranking

Database Listing	Relative Risk	Number of Entries
Underground Storage Tank (UST)	High	22
Emergency Response Notification System (ERNS)	High	6
State Hazardous Waste Site (SHWS)	High	9
Resource Conservation and Recovery Act Large Quantity Generator (RCRA-LQG)	Moderate	1
Resource Conservation and Recovery Act Small Quantity Generator (RCRA-SQG)	Moderate	5
Resource Conservation and Recovery Act Conditionally Exempt Small Quantity Generator (RCRA-CESQG)	Moderate	3
Resource Conservation and Recovery Act Non-Generator (RCRA-Non Gen)	Moderate	4
Historic/Current FIFRA/TSCA Tracking System (FTTS)	Moderate	3
Facility Index System (FINDS)	Low	22
Recycling Facilities (NV SWRCY)	Low	2
California Haz Waste Manifests (CA HAZNET)	Low	4
NV National Pollutant Discharge Elimination System (NPDES)	Low	1
Hazardous Chemical Inventory Submittal Requirement (Tier 2)	Low	2
TOTAL		84

Notes:

Underground storage tank total includes Indian USTs (1 property).

Does not include MINES database results (neither of 2 properties could be located).

Does not include CDLs (1 current; 2 historic).



The following sections summarize effects to the alternatives from hazardous waste sites. Figure 3-51 shows the hazardous material sites and wells identified through the EDR database report and field reconnaissance in the project Study Area.

Figure 3-52 and Figure 3-53 show the locations of hazardous material sites and wells relative to each of the build alternatives' project limits and their 0.25-mile buffer.

3.18.4.1 No-Action Alternative

The No-Action Alternative would have no impact on hazardous waste sites in the area of assessment.

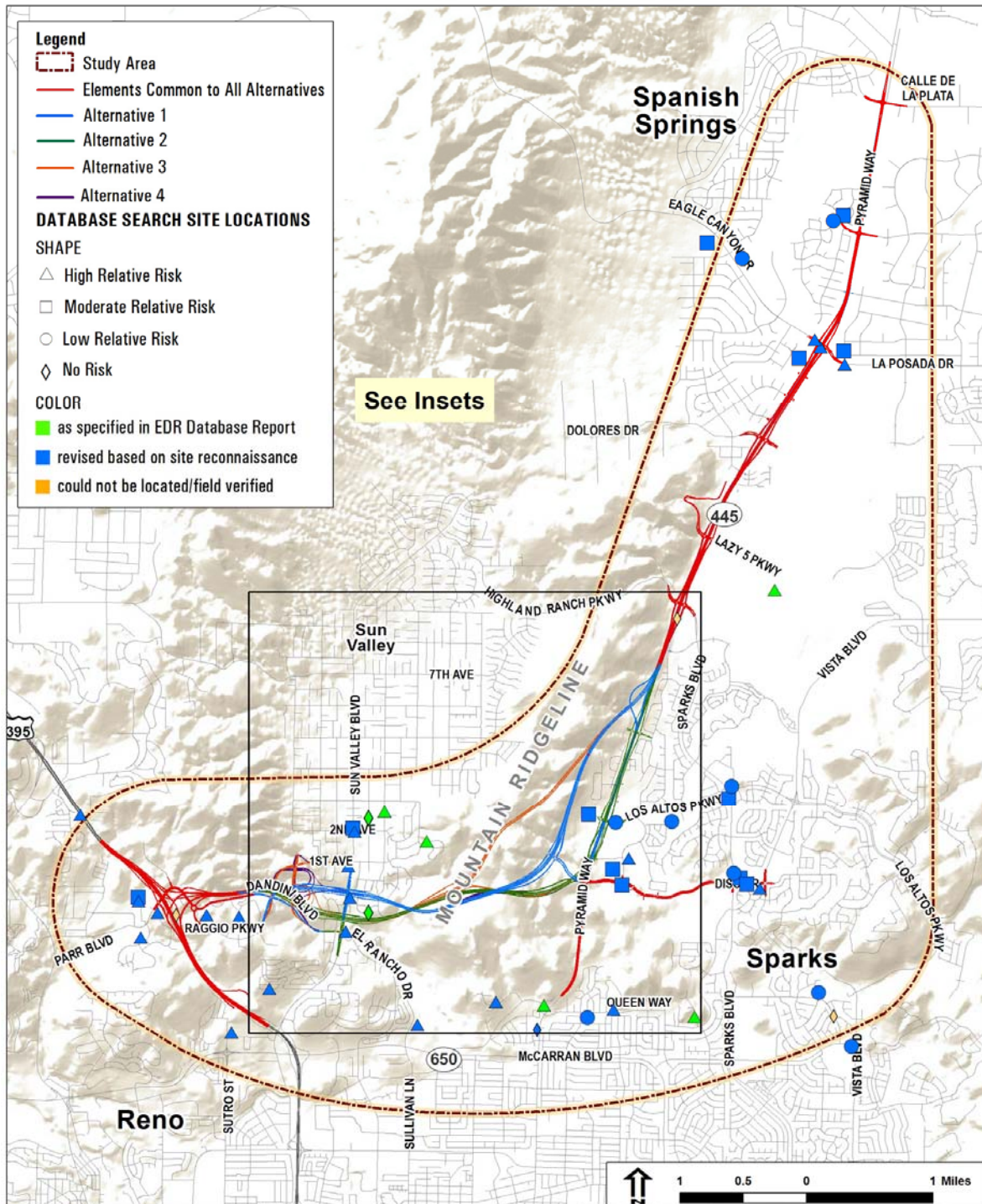
3.18.4.2 Alternative 1

Of the hazardous material sites and wells shown on Table 3-46 and Figure 3-52, 32 sites are located in the 0.25-mile buffer of Alternative 1. Of these 32 sites, 19, 9, and 3 of these properties are considered to represent High, Moderate, and Low relative risks respectively. Of these, ten sites are situated within Alternative 1's project limits (approximately 300 feet to 1,500 feet wide) and could directly affect construction of Alternative 1. Of these ten sites, the 7-Eleven service station #20989 adjacent to Sun Valley Boulevard and the 7-Eleven service station #32822 adjacent to Eagle Canyon Drive would be acquired as a result of Alternative 1. Indirect impacts could occur from the remaining 24 hazardous material sites in the buffer, which may require further evaluation based on the nature of the potential impact.

3.18.4.3 Alternative 2

Similar to Alternative 1, of the hazardous material sites shown on Table 3-46 and Figure 3-52, 32 are located within the 0.25-mile buffer of Alternative 2. Of the 32 sites, 19, 9, and 3 properties that represent High, Moderate, and Low relative risks respectively. Of these, nine sites are situated within Alternative 2's project limits (between 300 feet to 3,000 feet wide) and could directly affect construction of Alternative 2. Of the nine sites, the Rainbow Market adjacent to Sun Valley Boulevard and the 7-Eleven service station #32822 adjacent to Eagle Canyon Drive, would be acquired as a result of Alternative 2. Indirect impacts could occur from the remaining 23 hazardous material sites in the buffer, which may require further evaluation based on the nature of the potential impact.

1



Note: Insets are shown on Figure 3-52 and Figure 3-53.

Figure 3-51. Hazardous Waste Site Locations

2

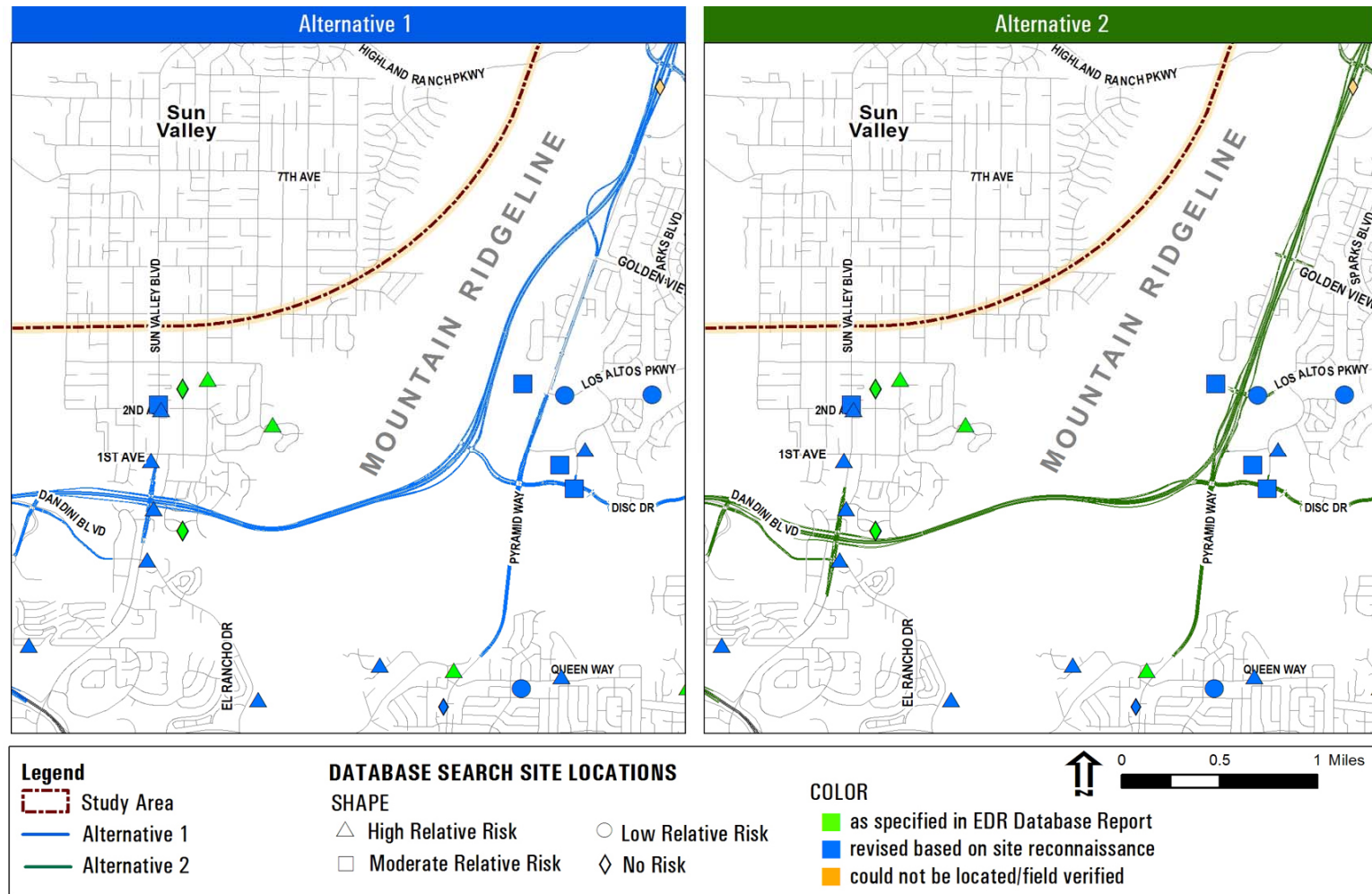


Figure 3-52. Hazardous Waste Site Locations – Alternatives 1 and 2

1

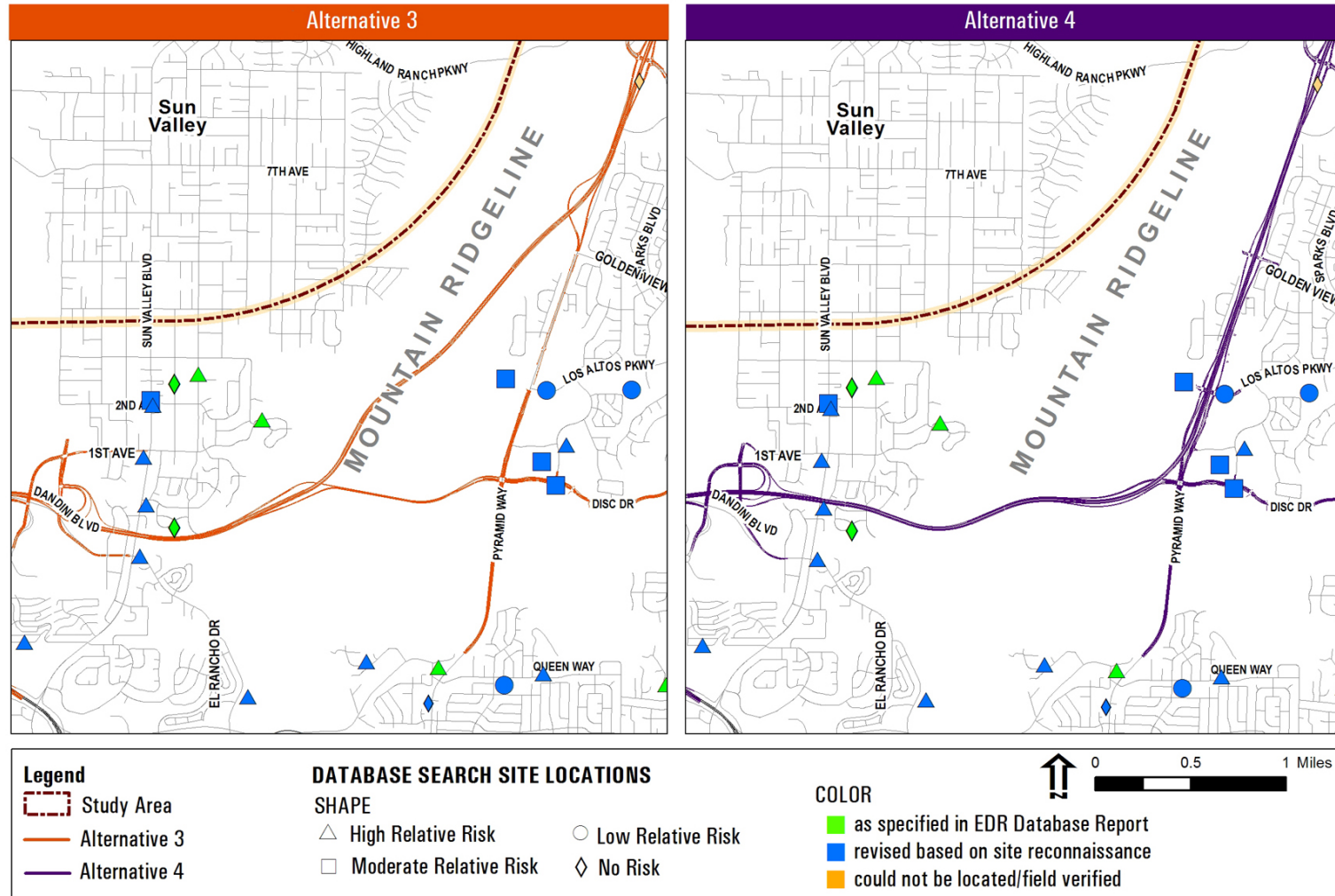


Figure 3-53. Hazardous Waste Site Locations – Alternatives 3 and 4

2



3.18.4.4 Alternative 3

Of the hazardous materials sites shown on Table 3-46 and Figure 3-53, 35 are located within the 0.25-mile buffer of Alternative 3. Of these, 21, 10, and 3 properties represent High, Moderate and Low relative risks, respectively. Of these, eight sites are situated directly within Alternative 3's project limits (approximately 300 feet to 1,700 feet wide) and could directly affect construction of Alternative 3. Of the eight sites, the 7-Eleven service station #32822 adjacent to Eagle Canyon Drive would be acquired as a result of Alternative 3. Indirect impacts could occur from the remaining 27 hazardous material sites in the buffer, which may require further evaluation based on the nature of the potential impact.

3.18.4.5 Alternative 4

Of the hazardous material sites shown on Table 3-46 and Figure 3-53, 35 are located within the 0.25-mile buffer of Alternative 4. Of these, 21, 10, and 3 properties represent High, Moderate and Low relative risks. Of these, nine sites are situated directly within Alternative 4's project limits (approximately 300 feet to 1,800 feet wide) and could directly impact this construction of Alternative 4. Of the nine sites, the 7-Eleven service station #32822 adjacent to Eagle Canyon Drive would be acquired as a result of Alternative 4. Indirect impacts could occur from the remaining 26 hazardous material sites in the buffer, which may require further evaluation based on the nature of the potential impact.

3.18.4.6 Impact Summary

Table 3-48 shows listed sites within the project limits of the build alternatives. Potential direct impacts for each of the build alternatives are generally similar, with most potentially significant impacts related to USTs. In addition, three properties listed as REC would be acquired as a result of the build alternatives.

Table 3-48. Summary of Listed Sites within the Project Limits of the Build Alternatives

Property	Address	Identified Records	Relative Risk			
			Alternative 1	Alternative 2	Alternative 3	Alternative 4
Reno-Sparks Indian Colony	7655 Pyramid Lake Hwy.	INDIAN_UST	High	High	High	High
Granite Construction Company	US 395 @ Parr Blvd.	SHWS	High	High	High	High
Rainbow Market	4696 Sun Valley Blvd.	UST	None	High*	High	None
7-Eleven #20989—Closed	4850 Sun Valley Dr.	UST	High*	None	None	High
Moana Nursery (Wright Nursery)	7655 Pyramid Highway	FTTS, FINDS	Moderate	None	None	None

Table 3-48. Summary of Listed Sites within the Project Limits of the Build Alternatives

Property	Address	Identified Records	Relative Risk			
			Alternative 1	Alternative 2	Alternative 3	Alternative 4
Longs Drug Store #213	175 Disc Dr.	RCRA-NONGEN, FINDS	Moderate	Moderate	Moderate	Moderate
Reigning Cats & Dogs Pet Food And Supplies	1338 Disc Dr.	FTTS	Moderate	Moderate	Moderate	Moderate
Verizon Wireless	105 Los Altos Pkwy #101	NV-SWRCY	Low	None	None	Low
Terrible's #830	8995 La Posada Dr.	UST	High	High	High	High
7-Eleven #32822	15 Eagle Canyon Dr.	UST	High*	High*	High*	High*
Terrible's #810	1390 Disc Dr.	UST	High	High	High	High

*=Potential Property Acquisition

Table 3-49 shows the total number of sites with the potential for direct impacts under each build alternative is about the same.

Table 3-49. Number of Listed Sites within Project Limits by Risk Ranking

Alternative	Low Risk Sites	Moderate Risk Sites	High Risk Sites	Total
Alternative 1	1	3	6	10
Alternative 2	1	2	6	9
Alternative 3	0	2	6	8
Alternative 4	1	2	6	9

This summary does not tabulate indirect impacts from listed sites that are outside of the project limits for the build alternatives. However, if a build alternative is identified as the Preferred Alternative, these sites should be evaluated further based on their proximity to the project limits and their risk potential. Reasonable mitigation measures will be recommended once hazardous waste impacts are confirmed for the selected build alternative. These mitigation measures should also present recommendations for collecting additional data considered necessary to complete characterization of the impacts and, if corrective actions are needed to mitigate an impact, alternatives could be developed to document order-of-magnitude costs for remediation to support the selected build alternative.



3.18.5 Hazardous Materials Mitigation

Contaminated soil and hazardous wastes will be analyzed and properly disposed of at an approved facility. In addition, if the contaminated soil and hazardous waste are found to exceed regulatory amounts, the material will be managed and disposed of in accordance with applicable local, state, and federal hazardous waste regulations.

Owners of subsurface utilities will be contacted in areas where excavation is to be conducted to assess whether any of the utilities are contained in Transite™ asbestos pipe. If subsurface utilities are determined to be housed in Transite™ asbestos pipe, and the utilities will be relocated for the project, special handling, and possibly asbestos abatement will be required. In addition, abandoned utilities may also be found in areas where excavation is to be conducted. Special handling and possible asbestos abatement will be required.

There are several properties adjacent to the right-of-way that includes structures. One property, the 7-Eleven service station #32822 adjacent to Eagle Canyon Drive, would be fully acquired as a result of all build alternatives. In addition, the Rainbow Market and 7-Eleven #20989 service station adjacent to Sun Valley Boulevard would be acquired as a result of Alternative 2 and Alternative 1. The buildings and structures were not inspected for the possible presence of asbestos-containing materials (ACM), lead-based paint (LBP), or petroleum hydrocarbons in soil.

Prior to commencement of activities that may disturb suspect material, inspections for ACM and LBP will be conducted by appropriately trained and licensed personnel.

If a build alternative is identified as the Preferred Alternative, RTC and/or NDOT will conduct further evaluations later in the project development process. Potential impacts will be further evaluated based on the nature of the potential impact (releases, USTs versus manufacturing or wastewater facilities) relative to the proposed improvements. Additional evaluations should initially include facility-specific Phase I ESAs pursuant to the current ASTM Designation 1527 standard in effect for all properties within the build alternative footprint, with follow-on Phase II investigations conducted, if justified by the Phase I Environmental Site Assessment (ESA) findings. Mitigation measures, if determined to be necessary, will be based on the results of the Phase I and Phase II investigations.

3.18.6 Conclusions

Based on the environmental database research and site inspection of the area of assessment, construction of the proposed improvements may be directly or indirectly impacted by properties/hazardous materials sites identified as having potential RECs. The proposed improvements would result in full acquisitions of properties, including three properties listed as REC. Therefore, additional evaluations should initially include facility-specific Phase I ESAs pursuant to the current ASTM Designation 1527 standard

in effect for all properties within the build alternative footprint and to be acquired, with follow-on Phase II investigations conducted, if justified by the Phase I ESA findings.

3.19 PARKS AND RECREATION

This section describes existing and planned parks and recreation resources in the Study Area. This includes parks, recreational facilities, and open space areas that offer opportunities for recreation. Bicycle and pedestrian facilities are discussed in Section 3.7 *Pedestrian and Bicycle Safety*.

3.19.1 Methods

The Study team identified existing and planned parks, recreational facilities, and open space areas within the Study Area through coordination with local jurisdictions, analysis of geographic information system (GIS) data, and review of area plans, as listed below:

- City of Sparks Master Plan Data Book, July 2007
- *Park District 2C Master Plan, Section One, Spanish Springs, Washoe County* Department of Regional Parks and Open Space, Administrative Draft, 2007
- *Sun Valley Park District 2D Master Plan, Washoe County* Department of Regional Parks and Open Space, Administrative Draft, 2006
- *Comprehensive Plan, Spanish Springs Area Plan, Part of Washoe County* Comprehensive Plan, November 2006
- *Comprehensive Plan, Sun Valley Area Plan, Part of Washoe County* Master Plan, November 2005
- Public Services, Facilities, and Infrastructure Plan, The City of Reno Master Plan, October 24, 2007
- Washoe County
- City of Sparks
- City of Sun Valley
- *Open Space and Greenways Plan, The City of Reno* Master Plan, March 2007
- Public Services, Facilities, and Infrastructure Plan, The City of Reno Master Plan, October 2007
- *Dandini Regional Center Plan, City of Reno* Master Plan, May 10, 2006
- *Consolidated Resource Management Plan, Bureau of Land Management* Carson City Field Office, 2001.



Collectively, these area plans reflect the desire to develop and maintain a system of parks and recreation areas that provide a broad range of recreational opportunities and contribute to community character.

3.19.2 Existing Conditions

3.19.2.1 Existing Parks and Recreation Facilities

The Study Area contains more than 30 public and private parks or recreation resources, including neighborhood parks, community parks, regional parks, golf courses, greenbelts, and open space. These facilities are summarized in Table 3-50 and shown on Figure 3-54.

Table 3-50. Existing and Planned Parks and Recreation Areas within the Study Area

Map ID No.	Facility Name	Location	Size (Acres)	Facility Type	Facility Ownership	Status
1	Aimone Park	55 Queen Way, Sparks	3.6	Neighborhood Park	Sparks	Existing
2	Alf Sorensen Community Center	1400 Baring Blvd, Sparks	51.4	Neighborhood Park	Sparks	Existing
3	Bodega Park	5350 Caldera Dr, Sparks	2.6	Neighborhood Park	Sparks	Existing
4	Canyon Hills Park	4480 Los Altos Pkwy, Sparks	3.0	Neighborhood Park	Sparks	Existing
5	City Recreation Center	98 Richards Way, Sparks	4.9	Neighborhood Park	Sparks	Existing
6	Coyote Springs Park	Vista Del Rancho Pkwy, Sparks	0.6	Neighborhood Park	Private	Existing
7	Desert Winds Park	105 Ember Dr, Washoe County	7.3	Community Park	Washoe County	Existing
8	Eagle Canyon Park	400 Eagle Canyon Dr, Washoe County	6.7	Community Park	Washoe County	Existing
9	Gator Swamp Park	255 Egyptian Dr, Washoe County	4.4	Community Park	Washoe County	Existing
10	Gepford Park	305 Gepford Pkwy, Washoe County	8.4	Community Park	Washoe County	Existing
11	Greenbelt	Shadow Ln, Sparks	0.9	Greenbelt	Sparks	Existing
12	Kestrel Park	Cathedral Peak, Sparks	2.7	Neighborhood Park	Sparks	Existing
13	Lazy 5 Regional Park	7100 Pyramid Way, Washoe County	85.0	Regional Park	Washoe County	Existing
14	Les Hicks Jr Park	Sparks Blvd & Vintage Hills Pkwy, Sparks	1.8	Neighborhood Park	Sparks	Existing
15	Maldonado Park	2150 Canyon Pkwy, Sparks	8.	Neighborhood Park	Sparks	Existing
16	Melody Lane Park	2730 Scottsdale Rd, Reno	5.2	Neighborhood Park	Reno	Existing

Table 3-50. Existing and Planned Parks and Recreation Areas within the Study Area

Map ID No.	Facility Name	Location	Size (Acres)	Facility Type	Facility Ownership	Status
17	Oppio Park	2355 18th St, Sparks	5.2	Neighborhood Park	Sparks	Existing
18	Pah Rah Mountain Park	1750 Shadow Ln, Sparks	13.4	Neighborhood Park	Sparks	Existing
19	Red Hawk Golf Club	Wingfield Hills Rd, Sparks	24.1	Golf Course	Private	Existing
20	Red Hill Open Space	2000 W 1st Ave, Washoe County	399.9	Open Space	Washoe County	Existing
21	Sage Canyon Park	Vista Heights Dr, Sparks	13.0	Neighborhood Park	Private	Existing
22	Shadow Mountain Sports Complex	3300 Sparks Blvd, Sparks	51.4	Special Use Park	Sparks	Existing
23	Shelly Park	52901 N Truckee Ln, Sparks	4.0	Neighborhood Park	State	Existing
24	Silverton Shores Park	Silverton Way, Sparks	26.2	Neighborhood Park	Private	Existing
25	Sky Ranch Park	8900 La Posada Dr, Washoe County	5.3	Community Park, planned for disposal	Washoe County	Existing (scheduled for disposal)
26	Sun Mesa Park	Sun Mesa Dr Off E Fifth Ave, Washoe County	2.8	Community Park	Washoe County	Existing
27	Sun Valley open space	Leon Dr.	15.7	Open Space	Washoe County	Existing (future dedication for transportation use)
28	The Links At Kiley Ranch	5800 Kiley Links Dr, Sparks	23.4	Golf Course	Private	Existing
29	University Ridge Park	990 University Park Loop S, Reno	12.7	Neighborhood Park	Reno	Existing
30	Village Green Park	849 Lepori Way, Sparks	1.6	Neighborhood Park	Sparks	Existing
31	Wedekind Park	Disc Drive and Pyramid Hwy	250.0	Regional Park	City of Sparks and Washoe County	Existing
32	West Calle de la Plata Park	West Calle de la Plata Drive	22.0	Neighborhood Park	Washoe County	Planned
33	Wildcreek Golf Course	3500 Sullivan Ln, Sparks	212.2	Golf Course	Washoe County	Existing
34	Wildcreek Park	3900 El Rancho Dr, Sparks	118.5	Neighborhood Park	Washoe County	Existing

Sources: Washoe County, 2011; City of Sparks, 2011.



1

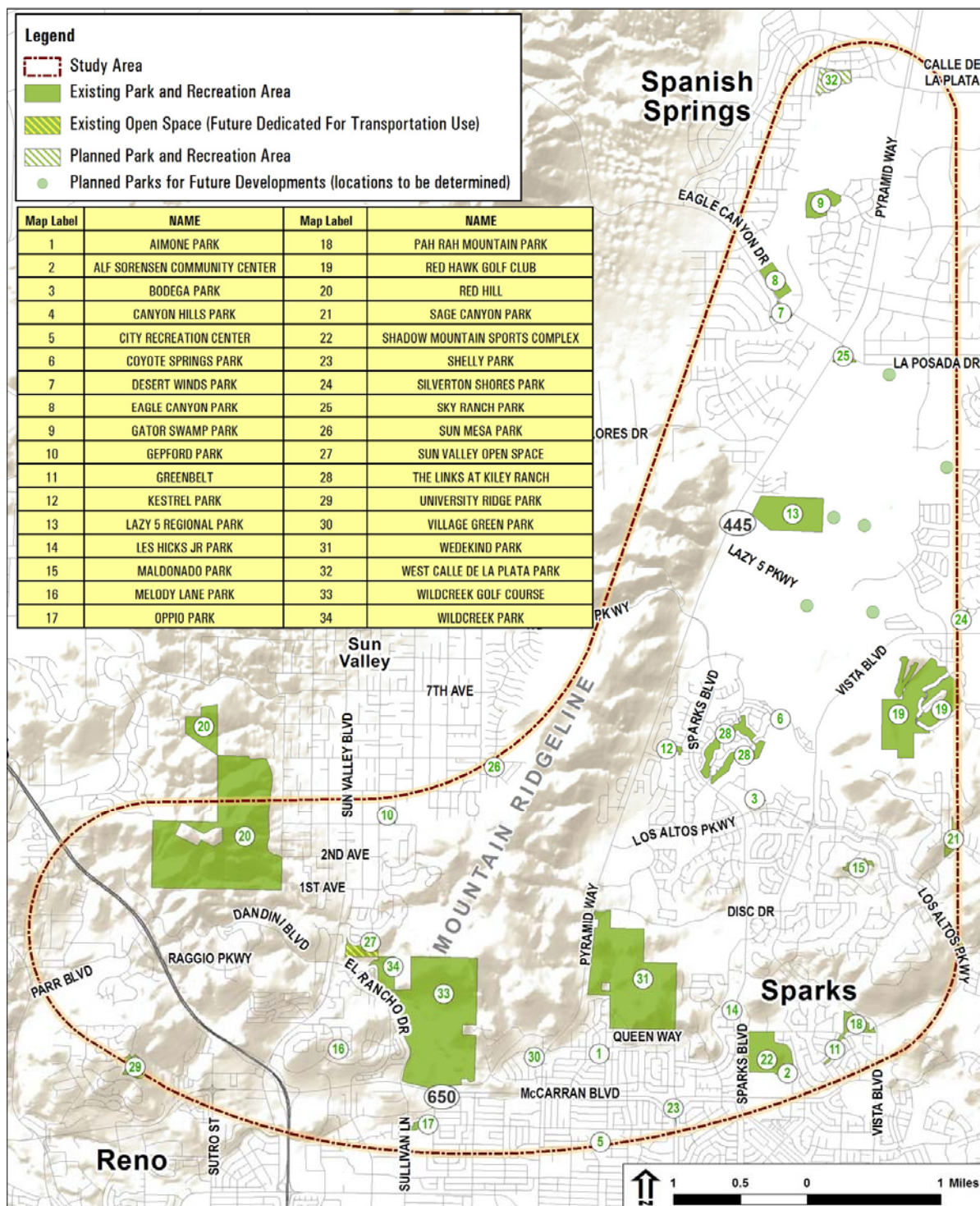


Figure 3-54. Existing and Planned Parks and Recreation Areas in the Study Area

2

Sky Ranch Park is currently planned for disposal because of existing safety concerns associated with its close proximity to Pyramid Highway. Therefore, Sky Ranch Park is not considered a park or recreation resource for purposes of this Draft EIS and is not discussed further.

Properties purchased with Land and Water Conservation funds (LWCFs) are protected through Section 6(f) of the *Land and Water Conservation Fund Act*. Because no properties within the Study Area were purchased with LWCF monies, no properties protected under Section 6(f) are present in the Study Area.

3.19.2.2 Planned Parks and Recreation Facilities

The following planned parks and recreation facilities were identified in the Study Area:

- The West Calle De La Plata Park is a planned neighborhood park and school site located west of Pyramid Highway on West Calle De La Plata. The 22-acre facility is planned to include multiuse turf areas, play equipment, pedestrian access to school site, non-motorized trails connecting to the regional trail system, picnic elements, and landscaping.
- Plans for the existing Dandini Regional Center located in the western part of the Study Area include a mixture of land uses to include urban parks, although no specific park areas are outlined in the Center's current plan.
- Future development projects in the northern Study Area east of Pyramid Highway include plans for neighborhood parks; however, exact locations for those parks have not yet been identified, and will be determined as plans for those future developments are finalized. Figure 3-54 shows the general locations of these parks.
- Washoe County owns a 15.7-acre parcel in Sun Valley, tentatively planned to include a new trailhead for the proposed Rim Trail. For purposes of this Draft EIS, this property is named Sun Valley open space in Table 3-50.

3.19.3 Parks and Recreation Impacts

The Study team assessed impacts to existing and planned private and public park, recreation, and open space facilities from the alternatives. It also evaluated how the project would accommodate planned facilities consistent with area plans. Parks and recreation facilities within 500 feet of the build alternatives were assessed for direct and indirect impacts. Impacts to parks and recreation facilities can include direct impacts, such as property acquisition; indirect impacts, such as modifications, traffic noise increases, visual changes; or temporary construction impacts, such as temporary access changes and detours. Impacts to public parks and recreation facilities were also assessed in

Over 30 parks and recreation areas were identified within the Study Area. Four of these resources would experience varying impacts under the build alternatives.



accordance with Section 4(f) of the U.S. DOT Act of 1966, as amended, and are described in Chapter 5.0 *Section 4(f) Evaluation*.

3.19.3.1 No-Action Alternative

The No-Action Alternative would not result in direct impacts to parks and recreation areas in the Study Area, but would result in traffic noise impacts to Wedekind Park, as described in Section 3.9 *Traffic Noise*.

3.19.3.2 Build Alternatives

This section describes anticipated impacts for the build alternatives.

Impacts Common to All Build Alternatives

- **Lazy 5 Regional Park.** The Lazy 5 Regional Park is located on the east side of Pyramid Highway. The Spanish Springs Library and parking area are located between Pyramid Highway and the park. As a result, no build alternatives would directly impact the park areas at Lazy 5 Regional Park; impacts to the library are described in Section 3.2 *Social Resources*.

All build alternatives would indirectly impact the park with the reconfiguration of the existing access from Pyramid Highway to meet safety requirements and current design standards as part of the Pyramid Highway improvements. This would involve closing the existing driveway access and providing access south of the library via a connection to the new roadway planned as part of the future development to be located south of the library. These improvements would require modifications to the library parking lot to accommodate the relocated access. It is anticipated that the modified access would be in place before construction for this project occurs in this vicinity. Washoe County and NDOT have been coordinating with the developer and support the revised access. Figure 3-55 conceptually shows access modifications that would occur under all build alternatives. RTC and/or NDOT will determine the reconfigured access and parking lot circulation during the final design process. If the future development is not in-place by the time access to the park would be affected, RTC and/or NDOT will provide alternate access.

- **Wedekind Park.** All build alternatives would keep the existing access at Wedekind Park. None of the build alternatives would result in traffic noise impacts to Wedekind Park. Additionally, the existing access to the trailhead parking at the northern portion of Wedekind Park, which is currently accessed via a driveway on the south side of Disc Drive just east of Pyramid, would be preserved and slightly improved. All build alternatives would result in visual impacts at Wedekind Park. The views west-northwest from the park would change with the addition of elevated structures in the proposed Disc Drive/Pyramid Highway/US 395 Connector interchange.

1



Source: Study Team, 2012.

Figure 3-55. Lazy 5 Regional Park Impacts Common to All Build Alternatives

2



The differences in those visual impacts between the build alternatives are detailed below. In addition, the build alternatives would change views of the southwest portion of the park from an undeveloped area to views of a permanent water quantity/quality basin.

- **Sun Valley open space.** To determine whether Section 4(f) would apply to the Sun Valley open space parcel, the Study team coordinated with Washoe County park planners to discuss the County's plans for the property and to communicate details about the build alternatives that would potentially cross the property. Chapter 5.0 *Section 4(f) Evaluation* contains more information. In support of this continuing coordination, the Washoe County Board of Commissioners adopted a Resolution of Support in August 2011 (contained in Appendix A *Agency Coordination*). The resolution acknowledges that both Washoe County and RTC are committed to working together to accommodate future joint uses for the parcel. Further, should the project affect the parcel, RTC will participate with Washoe County by providing reasonable funding and supporting possible construction to maintain compatibility between the project's roadway improvements and the limited park improvements planned by the County.

The resolution further states that the Board of Washoe County Commissioners supports cooperative planning between Washoe County, RTC, and City of Sparks regarding future development of the parcel that will minimize the project's potential impacts to the Sun Valley community. As a result of the Resolution, should the alternative selected as the Preferred Alternative cross the parcel, no park impacts would occur, and, therefore, no Section 4(f) use would occur.

Alternative 1 Impacts

- **Wedekind Park.** In addition to the impacts described above, Alternative 1 would impact approximately 4.1 acres of the 250-acre Wedekind Park, which represents 1.6 percent of the park. The 4.1 acres of impact include approximately 0.7 acre associated with the improvements at Disc Drive and Pyramid Highway, and approximately 3.4 acres associated with construction of the permanent water quantity/quality basin in the southwest portion of the park. Both impact areas are located on the periphery of the park adjacent to existing transportation features. Neither of these areas contains proposed recreation features associated with the park. Figure 3-56 illustrates these impacts. Alternative 1 would change Wedekind Park user views of the undeveloped hillsides northwest of the park by adding roadway and bridge structures associated with the extension of Disc Drive west, and US 395 connector roadway and interchange (described in Section 3.16 *Visual Quality*). Because Wedekind Park qualifies for Section 4(f) protection, Chapter 5.0 *Section 4(f) Evaluation* provides details on impacts and measures taken to avoid, minimize, and mitigate these impacts.



Source: Study Team, 2012.

Figure 3-56. Wedekind Park Impacts: Alternatives 1 and 3

1
2



- **Wildcreek Park.** The northern connector crossing under this alternative would be visible to Wildcreek park users. Because the Rampion Way crossing would be farther north of the active park areas, it would be less visible than the south of Rampion Way crossing associated with Alternatives 2 and 3 and therefore would result in lower visual impacts.

Alternative 2 Impacts

- **Wedekind Park** — In addition to impacts common to all build alternatives, Alternative 2 would impact approximately 5.4 acres of the 250-acre Wedekind Park, which represents 2.2 percent of the park. Approximately 1.6 acres of the total impact area would be associated with the improvements at Disc Drive and Pyramid Highway; approximately 3.8 acres would be associated with construction of the permanent water quantity/quality basin in the southwest portion of the park. Both impact areas are located on the periphery of the park adjacent to existing transportation features. Neither of these areas contains proposed recreation features associated with the park Figure 3-57 illustrates impacts to Wedekind Park. The US 395 Connector would be visible to the west of Wedekind Park. Alternatives 2 and 4 would result in the highest visual impacts among the build alternatives because the new interchange be located closer to the park and be more visually prominent, as described in Section 3.16 *Visual Quality*.
- **Wildcreek Park:** The southern connector crossing under this alternative would be more visible to Wildcreek park users than the north crossing under Alternatives 1 and 4. However, the active park areas are located in the southern portion of the park located farthest away from the crossing, and would result in minimal visual impacts to park users.
- **Sun Valley open space** — Alternative 2 would require total acquisition of this parcel.

Alternative 3 Impacts

- **Wedekind Park** — In addition to impacts common to all build alternatives, Alternative 3 would result in impacts to Wedekind Park similar to those described under Alternative 1, except that Alternative 3 would result in an additional 40 square feet of impacts associated with the improvements at Disc Drive and Pyramid Highway. The ridge alignment portion of Alternative 3 would result in a new roadway on the hillsides west of Pyramid Highway. Because the new alignment would be barely discernible along the ridgeline and the new Disc Drive interchange would be located farther to the west than the other build alternatives, Alternative 3 would have the lowest visual impacts to park users among the build alternatives, as described in Section 3.16 *Visual Quality*.



Source: Study Team, 2012.

Figure 3-57. Wedekind Park Impacts: Alternatives 2 and 4



- **Wildcreek Park:** Visual impacts to Wildcreek Park users would be the same as those described under Alternative 2.
- **Sun Valley open space** — Alternative 3 would require total acquisition of this parcel.

Alternative 4 Impacts

- **Wedekind Park** — Alternative 4 would result in the same impacts to Wedekind Park as those described under Alternative 2.
- **Wildcreek Park:** Visual impacts to Wildcreek Park users would be the same as those described under Alternative 2.

Summary of Impacts

Table 3-51 summarizes specific impacts to parks and recreation resources within the Study Area. In a larger sense, all build alternatives would provide transportation improvements that would improve circulation and mobility, thereby benefitting park amenities and recreationalists. These benefits would not be realized under the No-Action Alternative.

Table 3-51. Summary of Impacts for Parks and Recreation Resources

Resource	No Action Alternative.	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Lazy 5 Park	No impacts	Reconfigured access at Pyramid Highway	Same as Alt. 1	Same as Alt. 1	Same as Alt. 1
Wedekind Park	Traffic noise impacts	4.1 acres. Visual impacts	5.4 acres Higher visual impacts than Alts. 1 and 3	Same as Alt. 1 plus 40 sf Visual impacts same as Alt. 2	Same as Alt. 2
Wildcreek Park	No impacts	Lower visual impacts than Alts. 2 and 3	Higher visual impacts than Alt. 1	Same as Alt. 2	Same as Alt. 1
Sun Valley open space	No impacts	No impacts	Total acquisition	Total acquisition	No impacts

Source: Study Team, 2012.

3.19.4 Parks and Recreation Mitigation

The Study team attempted to minimize impacts to parks and recreation resources during the preliminary design performed for this Study, and will look for opportunities to further minimize impacts during the final design process.

RTC and/or NDOT will undertake the measures listed below to mitigate impacts to parks and recreation resources. Section 3.16 *Visual Quality* has additional information about mitigation measures for visual impacts.

- Lazy 5 Park. Maintain access during construction.
- Wedekind Park. Minimize cut/fill areas of the US 395 Connector to blend in with the surrounding environment to minimize visual impacts to park users. The existing access to the trailhead parking at the northern portion of Wedekind Park, which is currently accessed via a driveway on the south side of Disc Drive just east of Pyramid, would be preserved and slightly improved.
- Design fill slopes at the Disc Drive/Pyramid Highway intersection to mimic the natural landscape and revegetate all disturbed areas. Revegetation will include reseeding with native grasses and use of native shrubs as appropriate. Similarly, design of the proposed permanent water quantity/quality basin will also mimic natural landscape to the extent possible and will also be revegetated. During construction best management practices will be employed for erosion control. Property acquisition will be completed under the Uniform Relocation Act.
- RTC and/or NDOT will continue to coordinate with the City of Sparks Parks and Recreation Department on the design of the permanent water quantity/quality basin proposed in the southwest portion of the park so that it is consistent with the park's planned uses and amenities.
- Sun Valley open space parcel. Alternative 2 or Alternative 3 would require total acquisition of this parcel. If one of these alternatives becomes the Preferred Alternative, RTC will coordinate with Washoe County to meet the commitments set forth in Washoe County's August 2011 Resolution of Support regarding the Sun Valley open space parcel, described in Section 3.19.2.1 Existing Parks and Recreation Facilities and Appendix A *Agency Coordination*.

3.20 FARMLAND

This section describes the prime farmland, unique farmland, and land (other than prime or unique) of statewide or local importance located in the Study Area. The Farmland Protection Policy Act of 1981 (FFPA) protects land identified as prime farmland, unique farmland, and land (other than prime or unique) of statewide or local importance, as identified by the U.S.

Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). The purpose of this Act is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. It also assures that federal programs are administered in a manner that, to the extent practicable, will be compatible with government and private programs and policies to protect farmland.

The Farmland Protection Policy Act of 1981 protects land identified as prime farmland, unique farmland, and land of statewide or local importance



Prime farmland is defined as soil that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion. Unique farmland is defined as land that possesses the characteristics of prime farmland, but is being used to produce livestock and timber. Farmlands of statewide importance are those that have been identified by criteria established by a state organization. Farmlands of local importance are those that have not been identified as having national or statewide importance, but could have local significance based on the goals of the community. These farmlands do not include land already in or committed to urban development or water storage.

3.20.1 Methods

The following methods were used to quantify the existing conditions in the Study Area and to assess the potential impacts of each alternative on farmland.

The Study team acquired geographic and farmland classification data from the Soil Survey Geographic Database (SSURGO). This annually updated database provided all soil classifications in the Study Area, including prime and unique farmlands, and farmlands of statewide and local importance. Impacts to farmlands were analyzed by identifying farmland that falls within the Study Area and then measuring affected acreage through GIS analysis.

3.20.2 Existing Conditions

There are no farmlands identified as unique or of local importance in the Study Area. There are, however, certain portions of the Study Area identified as farmland soils of statewide importance, prime farmland soils, and prime farmland soils if irrigated and/or reclaimed of excess salts and sodium. For this last designation, the NRCS Service Center indicated this area would need to be actively irrigated for two of the past five years for that designation to apply. Most of the Study Area is developed and has not been actively irrigated in the past five years.

Protected farmlands do not include land already in or committed to urban development or water storage. Much of the identified farmland soils are located in Urbanized Areas, as defined by the U.S. Census Bureau, which removes them from consideration as prime farmland. In addition, areas that have been developed since 2000 and areas platted for development are not included in protected farmlands.

3.20.3 Farmland Impacts

3.20.3.1 No-Action Alternative

The No-Action Alternative would not affect existing farmlands.

3.20.3.2 Build Alternatives

Impacts to farmlands occur when they are converted to transportation uses. Areas that contain prime farmland soils that would be disturbed by the build alternatives fall primarily within existing transportation rights-of way, are managed and maintained by NDOT, and have not been in irrigation within the last five years. Other areas where impacts could occur are already in developed urban areas and are, therefore, precluded from consideration for prime or unique farmland.

No prime or unique farmlands protected by the Farmland Protection Policy Act would be impacted by the build alternatives.

Impacts Common to All Build Alternatives

Figure 3-58 displays the U.S. Census Bureau Urbanized Area in the Study Area and the soils in the northern portion of the Study Area that are considered prime if irrigated.

All impacted lands outside of the Urbanized Area fall within existing transportation rights-of-way, as shown in Figure 3-58, Inset 1. These lands are managed and maintained by NDOT and have not been in irrigation within the last five years.

Figure 3-58, Inset 2, illustrates the five undeveloped parcels shown would incur direct impacts as a result of the build alternatives, but only small portions of these parcels directly adjacent to the existing roadway would be impacted. These lands are an open and undeveloped mix of rabbitbrush and sagebrush and have not been under irrigation anytime in recent history. In addition, these parcels are owned by private land development companies and real estate investment groups and zoned for mixed-use development

No prime or unique farmlands protected by the Farmland Protection Policy Act would be impacted by the build alternatives. This assessment is based on the fact that the most of the lands potentially impacted by the build alternatives falls within the U.S. Census-designated Urbanized Area. Lands outside of this designation that contain soils that if irrigated would be categorized prime have not been under irrigation within the last five years.

Form NRCS-CPA-106, Farmland Conversion Impact Rating Form for Corridor Type Projects, was submitted to the NRCS Minden Soil Survey Office in Minden, Nevada, on January 9, 2012. This form concluded that the site did not contain prime, unique, statewide or local important farmland and, therefore, no Farmland Conversion Impact rating is required. The NRCS agreed with this conclusion in a letter dated January 19, 2012. Documentation of this Coordination with the NRCS is contained in Appendix A *Agency Coordination*.



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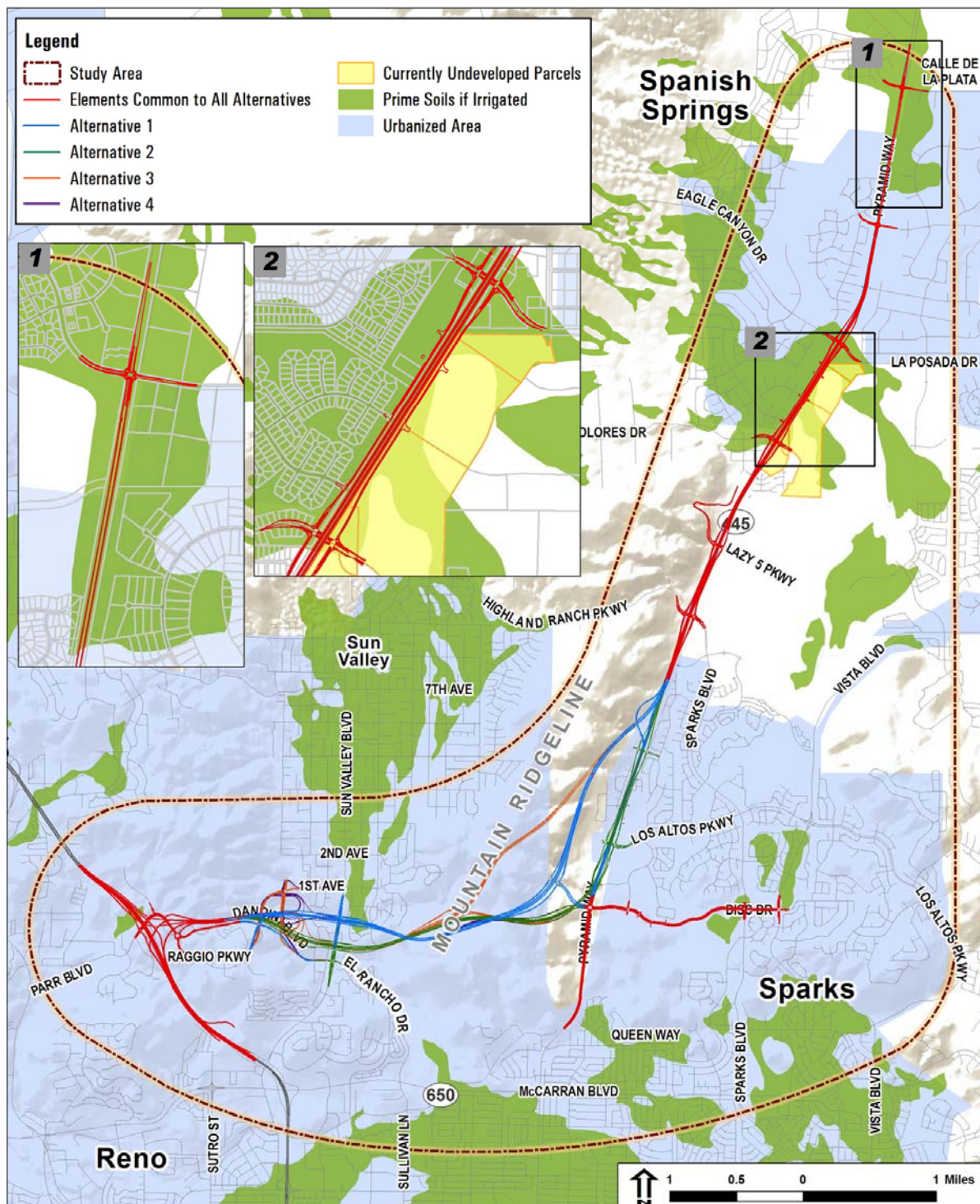


Figure 3-58. Farmlands Prime Soils if Irrigated

2

Alternative 1

Alternative 1 would have no additional impacts beyond those that are common to all build alternatives.

Alternative 2

Alternative 2 would have no additional impacts beyond those that are common to all build alternatives.

Alternative 3

Alternative 3 would have no additional impacts beyond those that are common to all build alternatives.

Alternative 4

Alternative 4 would have no additional impacts beyond those that are common to all build alternatives.

3.20.4 Farmland Mitigation

The NRCS agreed with the conclusion that no prime or unique farmland would be impacted by the project. Therefore, no further coordination with the local NRCS office is necessary, and avoidance and/or mitigation measures are not required.

3.21 ENERGY

This section describes the effects the build alternatives would have on energy use in the Study Area.

3.21.1 Methods

The Study team took a general approach to the energy analysis rather than computing British thermal unit (BTU) requirements, the traditional form of energy usage measurement on large projects. Energy usage was assessed based on traffic operations, such as vehicle hours traveled (VHT), local and freeway congestion, and vehicle miles traveled (VMT); multimodal aspects; and construction.

3.21.2 Existing Conditions

As the primary north-south corridor through Sparks and Spanish Springs, Pyramid Highway carries most of the local and regional traffic. Existing traffic volumes on Pyramid Highway within the Study Area are approaching capacity during peak periods. In the southern portion of the Study Area, near Queen Way and Disc Drive, peak period volumes are actually exceeding roadway capacity. This situation will only worsen by 2035 as population in the Study Area is projected to increase by 43 percent and employment to increase by 24 percent. Section 3.6 *Transportation* has more detailed information on existing and forecasted traffic conditions.



Traffic diversions to local streets and arterials near bottlenecks on the freeway are common and can cause considerable delay and additional fuel consumption. Motorists originating from or destined to the Spanish Springs or Sparks communities primarily use McCarran Boulevard or travel north from I-80 along Pyramid Highway. No other north-south roadways (besides Pyramid Highway) provide direct access to Spanish Springs. In addition, only two primary arterials (Dandini Boulevard, Clear Acre Lane, and Highland Ranch Parkway) provide access to the Reno metropolitan area, both of which are indirect routes and pass through residential areas

3.21.3 Energy Impacts

Direct impacts to energy usage primarily arise from the use of fossil fuels. Fossil fuel can be consumed during construction and post-construction by vehicles using the improved transportation facilities.

Indirect impacts would be those resulting from any anticipated growth in the Study Area. These could be greater demands on energy to construct new homes, on gasoline for automobiles, and on natural gas and electricity for utilities. It is anticipated that the additional energy demand would be directly proportional to the increase in population as land development occurs.

Because there would be no discernible difference in indirect impacts between the No-Action Alternative and the build alternatives, indirect impacts from the build alternatives are not discussed in the following sections.

The direct impacts to energy usage are described further in terms of energy consumed by vehicles under existing and future traffic operations, energy savings realized from the multimodal aspects of the build alternatives improvements, and energy consumed for construction.

3.21.3.1 Traffic Operations (Vehicle Hours Traveled)

No-Action Alternative

Under the No-Action Alternative, 11 of the 17 intersections analyzed in the Study Area would operate at stop-and-go conditions during the PM peak period (LOS E or F) by 2035. Since motorists would be delayed in queues at traffic lights, some would use slower arterial streets or would travel at different times. Because vehicles waste fuel while idling or moving at slow speeds, this level of traffic congestion would contribute to inefficient energy consumption.

Build Alternatives

All of the build alternatives would improve 2035 travel conditions through capacity and operational improvements. Under all four build alternatives, most of the roadway segments would operate at LOS D or better, with speeds exceeding 50 mph in the peak periods. The build alternatives would improve average travel speeds, thereby reducing travel times during peak periods.

Table 3-52. 2035 Daily Vehicle Hours Traveled by Alternative

Alternative	2035 Daily Vehicle Hours
No-Action	432,000
Alternative 1	408,000
Alternative 2	408,000
Alternative 3	406,000
Alternative 4	407,000

As shown in Table 3-52, when compared to the No-Action Alternative, the build alternatives would reduce total VHT by approximately 28,000 VHT (or approximately 6 percent) for the entire Study Area. There is little difference in VHT between the build alternatives since the proposed improvements would reduce overall travel times

3.21.3.2 Traffic Congestion on Local Street and Freeways

No-Action Alternative

Without additional east-west capacity under the No-Action Alternative, 2035 traffic volumes on McCarran Boulevard between Pyramid Highway and US 395 would range from 50,000 to 60,000 vehicles per day and would operate at unacceptable levels along all segments (LOS E or F).

Also under the No-Action Alternative, the excess demand that the Pyramid Highway cannot accommodate would be diverted onto other local roadways, such as Sparks Boulevard. This would result in unacceptable operations on those local roadways (LOS E or F).

Build Alternatives

The build alternatives would improve freeway operations, thereby reducing congestion at some of the bottleneck areas along local streets. The arterial improvements included in the build alternatives would improve traffic operations on local streets and encourage motorists to use new or improved local roads for short trips, allowing the freeway to more readily accommodate long-distance travel. Improvements associated with the build alternatives would allow traffic on the freeway to travel faster, thereby reducing fuel consumption.



3.21.3.3 Regional Vehicle Miles Traveled

No-Action Alternative

Fuel energy consumed by a vehicle is proportional to VMT. Because the VMT would not change under the No-Action Alternative, there would be no direct impact on energy usage.

Also under the No-Action Alternative, the excess demand that the Pyramid Highway cannot accommodate would be diverted onto other local roadways, such as Sparks Boulevard. This would result in unacceptable operations on those local roadways (LOS E or F).

Table 3-53. 2035 Daily Vehicle Miles Traveled by Alternative

Alternative	2035 Daily Vehicles Hours Traveled
No-Action	17,705,000
Alternative 1	17,740,000
Alternative 2	17,741,000
Alternative 3	17,740,000
Alternative 4	17,747,000

Note: Regional VMT was calculated based on the travel model for the Reno-Sparks metropolitan area.

Impacts Common to All Build Alternatives

Table 3-53 shows that the total regional VMT would increase minimally for the build alternatives by approximately 37,000 vehicles, or 0.002 percent compared to the No-Action Alternative.

3.21.3.4 Multimodal Aspects

No-Action Alternative

The No-Action Alternative would result in no additional multimodal facilities being built beyond what is currently planned.

Build Alternatives

The build alternatives would help reduce VMT by adding bus service improvements (to serve corridor demand consistent with the service standards of RTC), Park and Ride facilities, and bicycle lanes. The proposed bus service is an express transit service, which would run on large arterial streets or freeways with infrequent stops, reducing travel time compared to local bus service. Park and Ride facilities would help encourage carpooling and transit use; the bicycle lanes and shared use paths would encourage pedestrian and bicycle use. These multimodal aspects would reduce vehicle demand, parking demand, and energy use.

3.21.3.5 Construction

Energy is required for construction in the form of raw materials and equipment used to build or maintain the freeway.

No-Action Alternative

The No-Action Alternative would require no additional energy usage beyond what would be required for already planned construction projects in the Study Area.

Build Alternatives

The build alternatives would require energy for on-site construction work, such as grading and bridge construction, and for the off-site manufacture of pavement and bridge components. Roadway maintenance, such as resurfacing and patching that would occur from time to time, would also require energy. This additional energy would be consumed in the short term by construction equipment required to build the improvements and by added congestion caused by construction-related traffic delays.

3.21.3.6 Summary of Energy Impacts

Although the build alternatives would result in a slight increase in VMT over the No-Action Alternative, they would reduce VHT, which would result in added energy efficiency.

The build alternatives would increase the lane-miles of freeway in the Study Area so that more of the future VMT would occur on freeway facilities than under the No-Action Alternative. As a result, the build alternatives would reduce congestion and reduce traffic delays in the Study Area, thereby giving commuters and through-traffic incentive to remain on the freeway. More vehicles remaining on the freeway would result in increased system efficiency and reduction in VHT, which would offset the slight increase in VMT.

The build alternatives are expected to have a negligible effect on energy compared to the No-Action Alternative.

The build alternatives would reduce congestion and related traffic delay, resulting in higher and more consistent average travel speeds, which translates to more efficient vehicle operations. Improved operations would in turn reduce vehicle energy use, either in the form of petroleum fuels or alternative sources of energy. For these reasons, the build alternatives are expected to have a negligible effect on energy compared to the No-Action Alternative.

While the build alternatives would require more energy than the No-Action Alternative, the operational energy requirements of the build alternatives post construction would be less than those of the No-Action Alternative, ultimately off-setting the energy required during construction.

3.21.4 Energy Mitigation

No energy mitigation measures would be needed for traffic operations. However, energy conservation measures could be considered during construction to minimize overall project energy needs. For example, an energy plan could be implemented that would encourage contractors to adopt several construction energy conservation measures including, but not limited to:

- Using energy-efficient equipment.
- Incorporating energy-saving techniques during construction.



- Avoiding unnecessary idling of construction equipment.
- Consolidating material delivery whenever possible to promote efficient vehicle utilization.
- Scheduling delivery of materials during non-rush hours to minimize fuel lost to traffic congestion, thereby maximizing overall vehicle fuel efficiency.
- Encouraging project employees and contractors to carpool.
- Maintaining equipment and machinery in good working condition, especially those using fossil fuels.

3.22 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

3.22.1 Local Short-Term Uses Versus Long-Term Productivity

Short-term impacts to achieve long-term benefits are anticipated with any of the build alternatives, as described below:

- **Short-Term Effects.** Short-term effects include the commitment of considerable financial and material resources for construction. Construction would have short-term impacts on local air quality, ambient noise levels, local circulation and access, biological resources, wildlife habitat, water quality, visual resources, Section 4(f) resources, energy usage, and cultural resources. Many of these impacts would be mitigated.
- **Construction.** Benefits during construction would be the creation of construction-related employment
- **Long-Term Effects.** Construction of any of the build alternatives would require acquisition of land, which would preclude opportunities for other land uses. Long-term effects of the project would include an increase in ambient noise levels; a loss of vegetation and therefore wildlife habitat; and impacts to local hydrology, wetlands, cultural resources, and visual resources. There would be long-term impacts to water resources within the Sun Valley, Spanish Springs, and Truckee Meadows hydrographic basins and to recreational areas on BLM land and in Wedekind Park.
- **Long-term benefits.** Long-term benefits include improvement to travel safety and traffic operations within the Study Area, a decrease in overall travel times, and improvement to air quality by reducing traffic congestion. All of the build alternatives show that LOS at most of the intersections in the Study Area would show an improvement from their current level of LOS D or worse.

3.23 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Implementation of any of the build alternatives would require a commitment of natural, physical, human, and fiscal resources.

3.23.1 Natural Resources

The selected alternative's use of nonrenewable resources during construction would include fossil fuels and electrical energy for construction vehicles and equipment and maintenance trailers. After project completion, vehicles traveling along the constructed improvements would consume fossil fuels and alternative energy forms.

Roadway construction would require expenditure of fossil fuels and electrical energy to manufacture construction material and products, such as concrete, sand, aggregate, and steel. These resources are irretrievable; however, the project would not have an adverse effect on their continued availability.

3.23.2 Physical Resources

Some land along US 395, Sun Valley Boulevard, and Pyramid Highway has already been committed for use as transportation corridors. Additional lands would be required to construct the selected alternative's improvements, which would result in a loss of vegetation and wildlife habitat, water resources, public recreation areas, and historic properties. This commitment of additional lands would be considered an irreversible commitment of resources since it is unlikely that this land would ever be converted to another use. Any land acquired for the project, and not used for transportation purposes once the project is completed, would be disposed of in accordance with NDOT's surplus property procedures.

3.23.3 Human Resources

Construction of the project would require a considerable amount of labor, which is considered irretrievable.

3.23.4 Fiscal Resources

Construction of the project would require a considerable expenditure of local, state, and federal funds, which are considered irretrievable. The costs associated with long-term maintenance of the facilities would also be considered irretrievable.

3.23.5 Impact Summary

The benefits of the build alternatives are anticipated to outweigh the irreversible and irretrievable commitment of resources. These benefits include improvements to safety and accessibility, an increase in travel efficiency, and reduction in traffic congestion. The selected alternative's improvements would allow traffic on the freeway to travel faster, thereby reducing fuel consumption. In addition, the funds invested in the project would



benefit the motorists on the roadway and the communities relying on the roadway for connectivity to other communities.

3.24 CUMULATIVE EFFECTS

The National Environmental Policy Act and its implementing regulations require federal agencies to identify and analyze the direct, indirect, and cumulative impacts of a proposed federal action in sufficient detail to make an informed decision. A federal agency's responsibility to address these impacts in the NEPA process is established in Council on Environmental Quality (CEQ) regulations.

The CEQ regulations define a cumulative impact as:

“...the impact on the environment which results from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” (40 § CFR 1508.7)

Direct and indirect impacts were discussed by resource in the preceding Chapter 3.0 sections. This section addresses the cumulative impacts associated with the No-Action Alternative and the build alternatives. In accordance with CEQ guidance, the analysis was performed using available or reasonably obtainable information.

3.24.1 Methods

The methodology for the analysis of cumulative impacts used the EPA's June 2005 Guidance for Preparers of Cumulative Impact Analysis. It included the following steps:

- Identify the resources to consider in the cumulative impact analysis by gathering input from knowledgeable individuals and reliable information sources.
- Define the geographic boundary for each resource to be addressed in the cumulative impact analysis.
- Describe current health and historical context of each resource.
- Identify direct and indirect impacts of the proposed action that might contribute to a cumulative impact on the identified resources.
- Identify other reasonably foreseeable future actions and their associated environmental impacts to include in the cumulative impact analysis.

The analysis of cumulative impacts takes into account past, present, and reasonably foreseeable future actions, regardless of responsible party in the Regional Study Area, to determine the environmental impacts that might result from each alternative.

- Assess and report potential cumulative impacts.
- Assess the need for mitigation and/or recommendations for actions by other agencies to address a cumulative impact.

3.24.2 Agency Scoping and Identification of Resources for Cumulative Impact Analysis

In March 2008, NDOT distributed letters of intent to project stakeholders to announce preparation of this Draft EIS. The Study team also held scoping meetings with the general public and local and federal agencies on April 15, 2008, and April 16, 2008, respectively. While many comments were collected at both scoping meetings, the input received did not provide much information on which resources would be appropriate for cumulative effects analysis.

A cumulative impact analysis is resource-specific and is generally performed for environmental resources directly impacted by a federal action and/or identified through scoping as being key resources of concern.

The EPA provided written comments in a letter dated March 31, 2008. EPA did not specifically identify resources for inclusion in the cumulative impacts analysis, but provided guidance on methodology, preferring the use of the June 2005 Guidance for Preparers of Cumulative Impact Analysis. Also, the EPA did identify several resources of potential concern for analysis in the EIS, but not necessarily as part of the cumulative impacts analysis.

Based on the results of scoping and resource analysis for the Draft EIS, and in consultation with the Technical Advisory Committee described in Chapter 4.0 *Comments and Coordination*, the Study team identified three resources of concern to be evaluated for cumulative impacts—land use, water resources, and air quality. After completing a more detailed consideration of environmental consequences for this Draft EIS, the Study team determined that cumulative social considerations (including EJ and relocations) should also be evaluated.

All social, economic, and environmental resources were considered before identifying the important issues within the Regional Study Area. The cumulative impact analysis focuses on those resources substantially impacted by the project or resources currently in poor or declining health or at risk even if project impacts are relatively small. After scoping and a review of regional planning documents that address cumulative impacts to most of the resources considered in this Draft EIS, the Study team ruled out resources that would be minimally impacted or could be effectively mitigated, and resources that were not in poor or declining health. The sources of information used to determine the status of resources and potential for cumulative effects to the resources include the 2007 *Washoe County Master Plan*, the 2007 *Truckee Meadows Regional Plan*, and the *Washoe County Consensus Forecast 2010-2030*. The identified areas of particular concern within the Regional Study Area are:



- Land use (growth)
- Water resources and water quality
- Air quality
- Social considerations (EJ and relocations)

3.24.3 Geographic Area of Analysis

The geographic resource boundary to be used for the cumulative impacts analysis is based on the resources of concern and the potential impacts to these resources under a build scenario. This Regional Study Area shown in Figure 3-59 generally includes lands within the Truckee Meadows Regional Planning Area, including the City of Reno, the City of Sparks, and unincorporated Washoe County. This was chosen as the cumulative impact Study Area for the following reasons:

- For land use and social considerations, the Regional Study Area includes the boundaries of the Truckee Meadows Regional Planning Area, capturing the area where past, present, and reasonably foreseeable future land use change is anticipated.
- For water resources, the Regional Study Area is consistent with the planning area analyzed in the 2011-2030 Comprehensive Regional Water Management Plan and the Truckee Meadows Regional Storm Water Quality Management Program.
- For air quality, the Regional Study Area encompasses Washoe County Hydrographic Area 87, where there have been (or currently are) air quality issues, as well as the rest of the Truckee Meadows Regional Planning Area where growth is projected that could affect air quality.

3.24.4 Time Frame for Analysis

The time frame for the analysis of cumulative impacts should allow the analysis to recognize long-term trends while remaining focused. Time frames are typically based upon the availability of data or a meaningful event that has influenced existing conditions (construction of a highway or railroad, for example).

The time frame established for this cumulative impact analysis extends from 1960 to 2035. These dates were based upon the completion of I-80 in 1964 resulting in a subsequent population boom and the project horizon (2035).

1

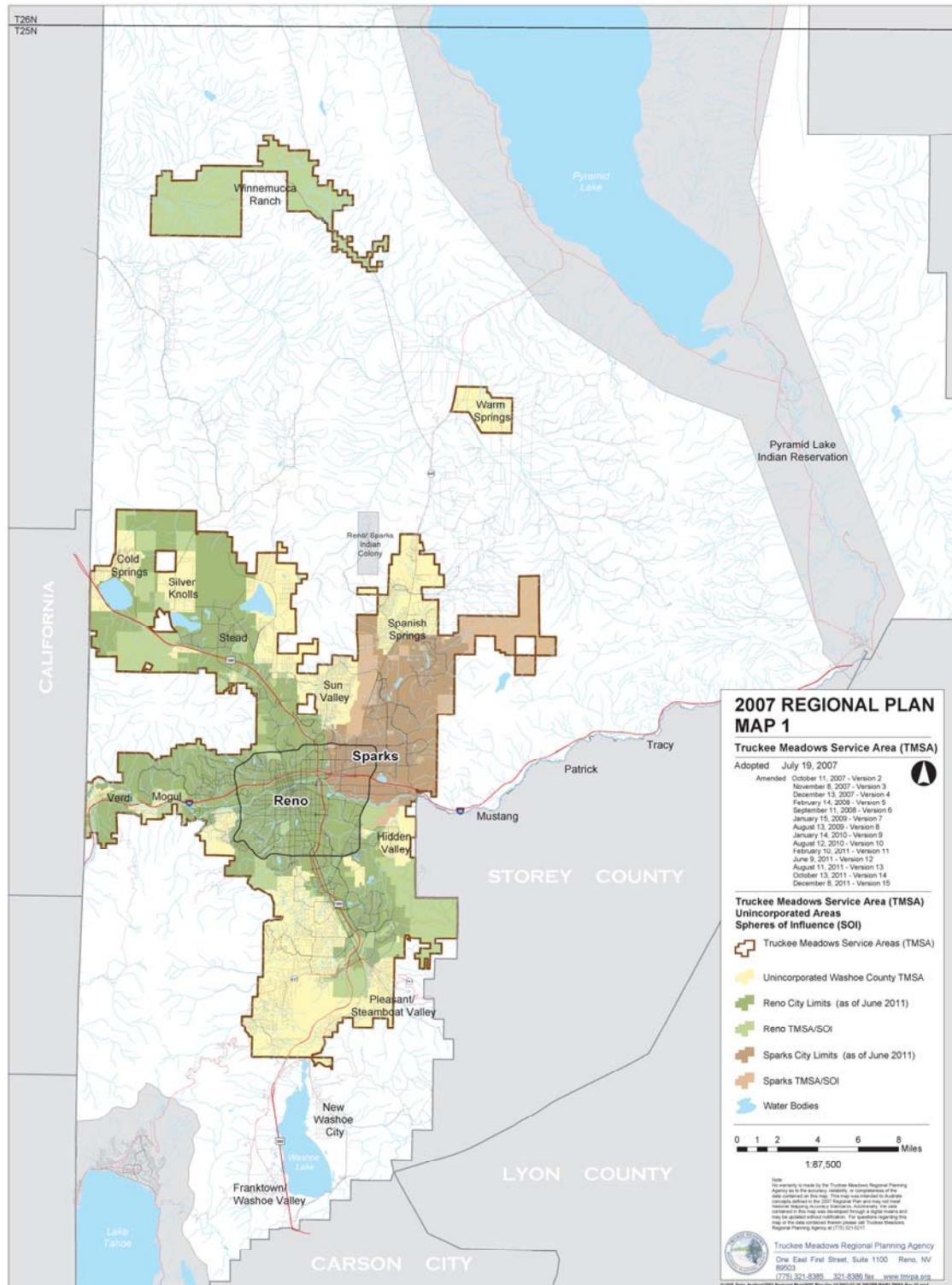


Figure 3-59. Regional Study Area



3.24.5 Reasonably Foreseeable Future Projects

Current and reasonably foreseeable actions in the Regional Study Area include development, transportation, and infrastructure projects that are expected to occur regardless of the improvements that are being evaluated in this Study. These projects, listed in Table 3-54 and Figure 3-60, include those that are under construction or have been approved.

Transportation projects shown on Figure 3-60 are notable planned transportation improvements in the vicinity of the Regional Study Area, including:

- West Sun Valley Arterial as a new four-lane arterial.
- North Connector, as a new two-lane road between Sun Valley Boulevard and Lemmon Drive.
- Widening of US-395 from White Lake Parkway to Mount Rose Highway.
- Widening of arterials, including segments of Clear Acre Lane, Sun Valley Boulevard, Sparks Boulevard, and Vista Boulevard.
- Lazy 5 Parkway as a new four-lane arterial.
- Sutro Street Extension and interchange with US 395.
- Improvements at Pyramid Highway/McCarran Boulevard intersection.

These projects are included in the RTC's fiscally constrained 2030 RTP. Minor projects, including improvements to bicycle and pedestrian facilities, municipal intersections, and bridges, are not included in these tables.

Developments were compiled from meetings with officials from Washoe County, City of Reno, the City of Sparks, and RTC's 2030 RTP and 2009-2013 RTIP. Data collection was centered on readily available data.

Table 3-54. Reasonably Foreseeable Future Projects in the Regional Study Area

Development Name	Development Type	Project Description
Unincorporated Washoe County		
Broken Hills	Residential	170 lots approved
Donovan Ranch (Shadow Ridge)	Residential	390 lots approved
Eagle Canyon IV	Residential	527 lots approved
Eagle Canyon V	Residential	212 lots approved
Falcon Ridge	Residential	269 lots approved
Golden Mesa South	Residential	59 lots approved
Harris Ranch	Residential	262 lots approved
Ladera Ranch	Residential	356 lots approved
New Horizons	Residential	19 lots approved
Pebble Creek	Residential	344 lots approved
Sky Ranch North #2	Residential	185 lots approved

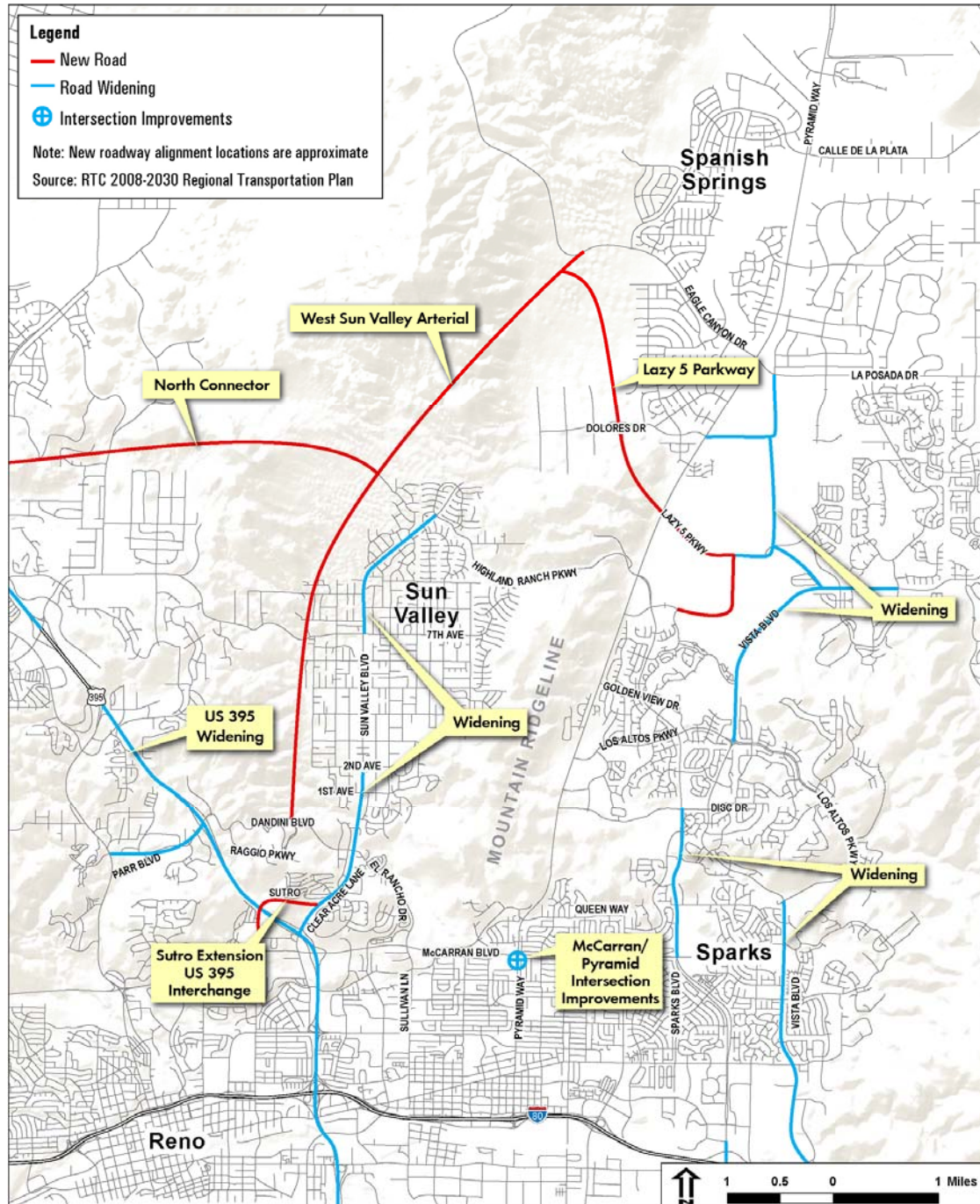
Table 3-54. Reasonably Foreseeable Future Projects in the Regional Study Area

Development Name	Development Type	Project Description
Sun Mesa (Landmark Homes)	Residential	207 lots approved
Warm Springs Ranch	Residential	750 lots approved
Mystic Mountain Estates	Residential	141 lots approved
Reno		
The Montage	Mixed-Use	Full-block multistory development, including 15,000 square feet of retail, 388 residential units, and hotel-casino
Belvedere Towers	Residential	160 condominiums in downtown Reno
Waterfront District	Residential	190 condominiums
Triple A Baseball Stadium	Entertainment	New baseball stadium
Wingfield Towers	Mixed-Use	Two towers located in downtown Reno, 499 condominiums, 40,000 square feet of retail
Spring Mountain (Winnemucca Ranch)	Mixed-Use town development	12,000 homes with a projected 26,000 residents, 30 miles north of Reno in Winnemucca Valley and Dry Valley
Sparks		
Tierra Del Sol	Residential, Commercial, Open Space Development	24.74 acres of commercial development, 115 single-family units
Sparks Crossing	Commercial	Development mostly complete
Spanish Springs Town Center	Commercial	Development mostly complete
Miramonte	Residential	986 single-family homes
Marina Village	Mixed-Use	6.6 acres single-family, 9.31 acres multifamily, 7.45 acres mixed use
Pioneer Meadows	Mixed-Use	182 acres single-family homes, 109 acres business park, 85 acres multifamily, 47 acres commercial
Kiley Ranch North	Mixed-Use	4,436 dwelling units, 142 acres business park, 123 acres commercial development
Stonebrook	Mixed-Use	2,135 dwelling units, 33.7 acres business park, 47.9 acres commercial
Sparks Galleria	Mixed-Use	70.39 acres commercial, 175 units medium density residential
Foothills at Wingfield Springs	Residential	1,978 single-family residential, 300 multifamily units
Golden Eagle Regional Park	City park	6 adult softball fields, 2 little league fields, multipurpose fields, 3 concession buildings, and a maintenance facility
Copper Canyon	Mixed-Use	3.6 million square feet business office space on 127 acres, 1,033 single-family residential dwellings on 323 acres, 876 multifamily dwellings, 200-room hotel/gaming facility, 24.5 acres commercial
The District at Victorian Square	Mixed-Use redevelopment	208 high-density units, 150,000 square feet office, 98,750 square feet retail, potential location for new city hall
Legends at the Sparks Marina	Retail/entertainment development	1.3 million square feet retail/commercial casino, hotel resort
Wedekind Regional Park	Dedicated open space	250-acre parcel of open space; future plans include development of a small neighborhood park, rehabilitation of trails; split-rail fencing has been constructed around the park

Sources: Washoe County, City of Sparks, City of Reno, 2007, updated 2009 and 2011.



1



Source: Washoe County Regional Transportation Plan Amendment 3, 2011.

Figure 3-60. Planned Transportation Projects in the Regional Study Area

2

The BLM manages a significant portion of the lands throughout Washoe County. Long-term management plans call for retention of most of this land in public ownership. Lands are managed to protect open space, visual, recreation, watershed, and wildlife resources with priority over other uses. Consequently, this analysis assumes that these lands will remain undeveloped.

3.24.6 Existing Conditions

This section provides the historical context for the cumulative impact analysis and includes an assessment of historical growth and development within the region and future growth projections. Historical actions impacting resources of concern are described in greater detail for each resource in Section 3.17 *Historic Preservation*.

3.24.6.1 Historical Setting

Washoe County was formed in 1861 as one of the original nine counties when the Territory of Nevada, prior to statehood, was divided by the territorial legislature (McDonald, 1952). Primarily populated by the Washoe Indians, Washoe County was traversed by trappers and westward emigrants in the 1840s, with settlement occurring shortly thereafter.

Settlement occurred both along the Truckee River and in the Truckee Meadows, with the population expanding rapidly after 1859 when the discovery of the Comstock Lode, a major silver ore deposit near present day Virginia City, Nevada, became public. In 1857, the first development of what later become known as Sparks began at what was then known as Stone and Gates Crossing. Fuller's Station, the site of a log toll bridge across the Truckee River, was built in 1859; it was sold in 1861 and renamed Lake's Crossing. This site in May 1868 would be renamed Reno, and in 1871 it became the county seat.

Since the early 20th century, the Sparks and Reno have grown alongside one another. While mining played a role in the area's early growth, the area has prospered as first an agricultural center, and then a business center, aided by its proximity to east-west railroad lines, and US 395 and I-80, the major north-south and east-west highways.

Transportation has been a significant theme in the history of Washoe County. The emigrant trails, stage roads, Pony Express, railroads, and eventually interstate highways have all served to bring people and goods through the region. The transcontinental railroad came through Reno in 1868 and was a critical event in the establishment of Reno (Harmon, 2010).

By the early 20th century, the Lincoln Highway was established to provide a continuous, improved highway from New York to San Francisco. By 1921, the route went through western Nevada, generally following the existing alignment of US 50, and passed through Fallon, Sparks, and Reno to the California state line. A branch led south through



Carson City and the communities along the Lake Tahoe shore. The Lincoln Highway was completed in 1927 (Harmon, 2010).

US 395, stretching from the Mexican to Canadian borders, was first declared a US Highway in 1926. In Washoe County, US 395 serves as an interstate and an important regional highway connecting the county to Carson City, the state capital.

With the establishment of the highways, automobile tourism became an economic force in the region. By the end of World War II, easy automobile access to Reno's gambling halls brought the gaming industry to the forefront of the local and state economy (Harmon, 2010).

Beginning in the 1960s, I-80, the former Victory Highway, was expanded across northern Nevada. Although the interstate bypassed towns and depleted business on the old Lincoln Highway, it increased the benefit of Nevada's free-port privilege, providing a tax exemption to warehoused and locally manufactured goods (Harmon, 2010). Table 3-55 shows the population of Washoe County rapidly increased in the 1960s, and growth rates have consistently remained high since then.

Table 3-55. Population by Municipality, 1950 to 2000

Municipality	Population						Average Annual Growth Rate
	1960	1970	1980	1990	2000	2010	
Washoe County	84,743	121,068	193,623	254,667	339,486	421,407	12.32%
Reno	59,917	72,863	99,701	133,850	180,480	225,221	9.88%
Sparks	16,655	24,187	40,780	53,367	66,346	90,264	16.66%
Spanish Springs (CDP)	n/a	n/a	n/a	n/a	9,018	15,064	n/a
Sun Valley (CDP)	n/a	n/a	n/a	11,391	19,461	19,299	n/a

Source: U.S. Census Bureau, 2012.

3.24.6.2 Projected Growth

Based on demographic forecasts prepared by the Nevada State Demographer's office and RTC, population and employment is expected to continue to increase within the Regional Study Area, whether or not any transportation improvements related to this project are implemented. According to the data provided by these organizations, population within Washoe County is expected to increase to 610,000 by 2030 (*Pyramid Highway and US 395 Connection Traffic Technical Report*, 2011). Within the Regional Study Area, most of the growth is anticipated along the fringes of the existing development. Little to no population growth is expected in areas already built-out or unusable for residential development because of their topographic or water constraints.

Since 2005, development has slowed substantially and economic recovery is just beginning. However, major economic gains are still projected to be several years away. Figure 3-61 shows building permit activity for unincorporated Washoe County and the Cities of Sparks and Reno since 2002. Development peaked in 2005 with a combined total 5,550 residential building permits. Since then, the real estate market has declined substantially, with approximately 500 building permits issued each year in 2009, 2010, and 2011. Over 700 permits were issued in 2012, demonstrating the beginning of economic recovery.

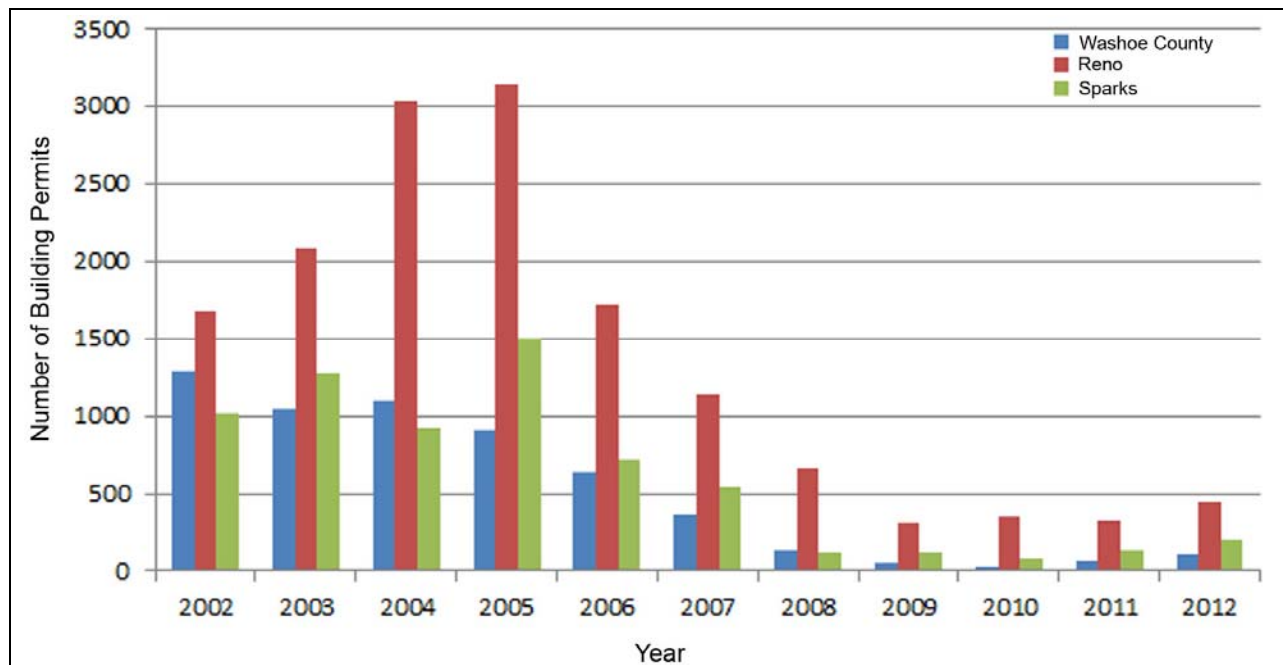


Figure 3-61. New Residential Building Permits, 2002 to 2012

A list of approved developments collected from Washoe County and the Cities of Reno, and Sparks in 2007 identified 28,975 lots approved for construction. Since 2007, a total of 10,435 building permits have been issued, leaving more than 18,540 approved and undeveloped residential lots. Also, there are thousands of existing homes for sale and more than 7,000 homes in some stage of default (Hidalgo, 2012). In 2012, around 6,000 homes sold, the strongest year for home sales since 2006 (Hidalgo, 2012). Based on the number of available homes and approved undeveloped lots, it is estimated that the real estate market has a four- to five-year housing inventory. Major developments like the Spring Mountain project (Winnemucca Ranch) have been suspended and it is unknown when, or if, development will begin again. Growth and development are still anticipated in the future, but may be delayed until the economy recovers and the inventory of available housing declines.



3.24.7 Cumulative Effects Impacts

3.24.7.1 Land Use

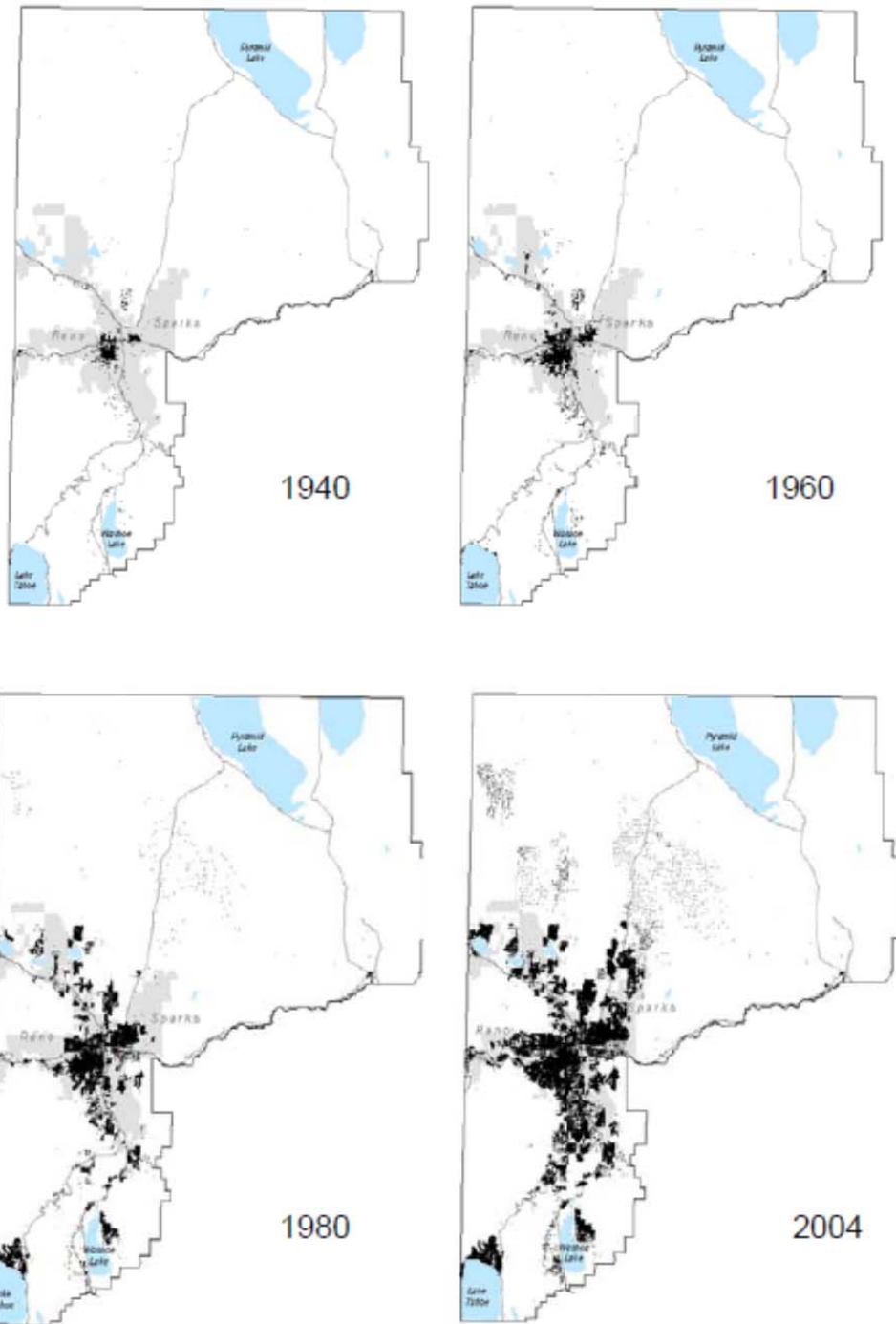
The earliest non-agriculture development in south Washoe County began as settlements at transportation crossroads in close proximity to the County's water and natural resources. Settlements developed at mining areas and at timber distribution centers. Development concentrated where the railroad, trails, and the Truckee River converged in the Reno/Sparks area, which became the metropolitan center. Figure 3-62 shows development patterns in the Regional Study Area between 1940 and 2004. Over the last half of the 20th century, the popularity of automobile travel and improved transportation routes have aided in the spread of growth into the surrounding valleys (*Washoe County Land Use and Transportation Element*, 2011).

Population growth, development, and land use change have continued in the Regional Study Area. Major commercial and industrial centers have developed along the highway corridors. Residential development has continued to the northeast and southwest.

Approximately 192,000 acres in Washoe County have been developed, about half of which occurred after 1980 (TMWA, 2010).

As part of this Study, reasonably foreseeable future developments and land use plans were reviewed to assess future growth patterns. Based on this review, it is expected that this general pattern of urbanization would continue until at least 2035. Development would continue outward from the Reno/Sparks area, and density would decrease farther from the urban core. However, the TMRPA's *Consensus Forecast*, which provided the land use and employment data used for this Study's traffic analysis, does anticipate an increase in infill and redevelopment in urban and suburban areas of the Regional Study Area as development in rural areas becomes less appealing because of its distance from the urban core and water and infrastructure constraints. This pattern of growth is expected to occur regardless of whether the any of the build alternatives are implemented.

1



Source: Washoe County Master Plan, 2011.

Figure 3-62. Regional Study Area Growth, 1940 to 2004

2

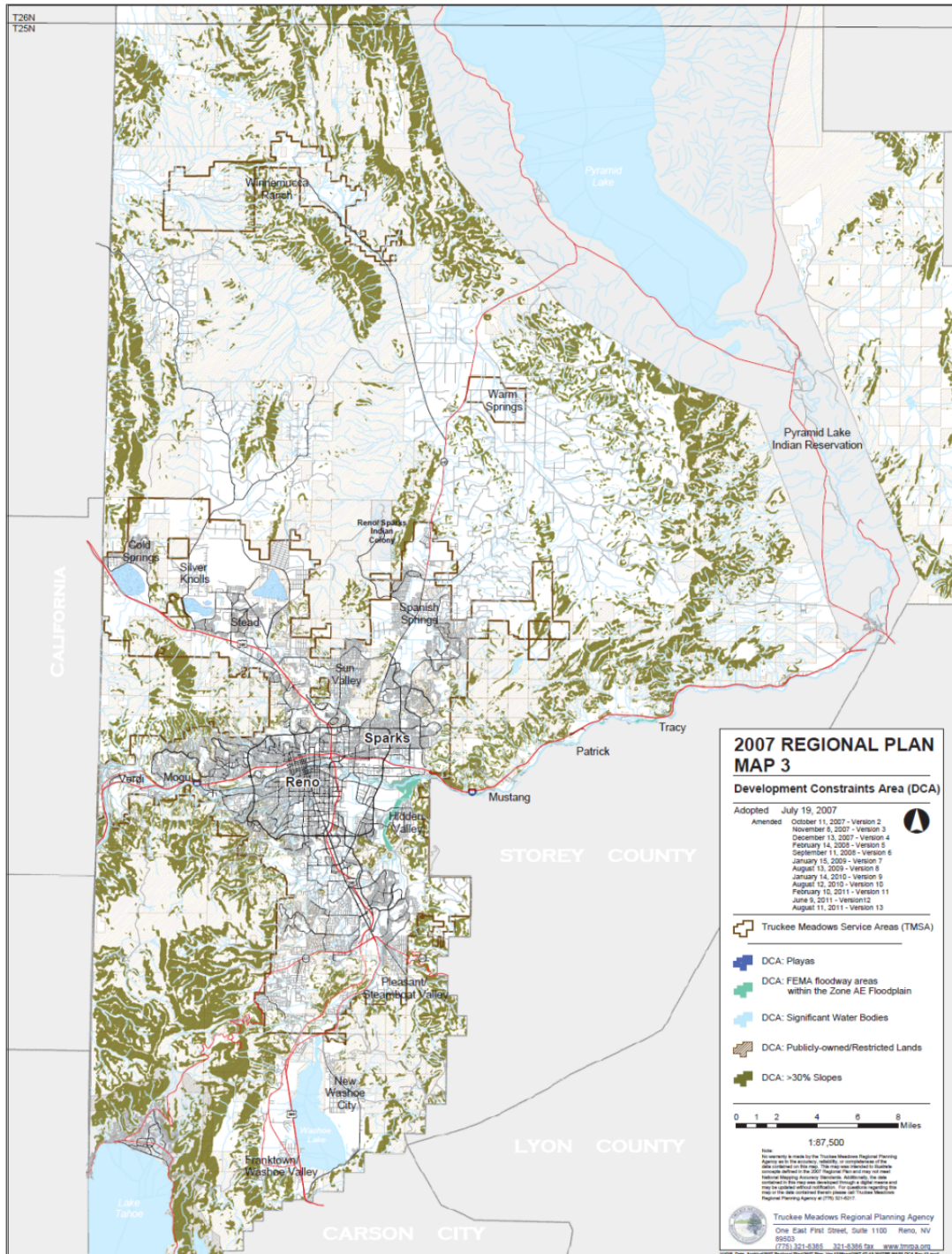


1 Approximately 78 percent (or 3.1 million acres) of Washoe
2 County is tribal land or publically owned and managed by
3 the State of Nevada, BLM, USDA Forest Service, or U.S.
4 Bureau of Reclamation (BOR). Future development of these
5 lands is unlikely. This leaves just less than 700,000 acres of
6 land in Washoe County for potential future development,
7 most of which is located within the Rural Development Area
8 where water is limited and lot sizes less than five acres are not allowed. The TMRPA has
9 mapped the Development Constraints Areas (DCA) where future development may not
10 occur that are shown in Figure 3-63. The DCA contains playas, significant water bodies,
11 natural slopes over 30 percent, publicly owned open space, and properties that are deed-
12 restricted to prevent development. The DCA overlay takes precedence over otherwise

Over ¾ of the land in
Washoe County is tribal
land or publically owned
land, where future
development is unlikely.

13
14 As discussed in Section 3.1 *Land Use*, the Truckee Meadows Regional Planning Agency,
15 Washoe County, and the Cities of Reno and Sparks all have future land use plans for the
16 applicable policies describing the desired density and intensity of development (Washoe
17 County, 2011) Regional Study Area. Future infill and higher-density growth is projected
18 in the Truckee Meadows Service Area shown on Figure 3-63, and low-density dispersed
19 development is projected in the Rural Development Area. Growth in Sparks and
20 Spanish Springs would continue to be focused along the Pyramid Highway corridor,
21 with commercial development located along Pyramid Highway and residential
22 development set back from the highway. Likely major impacts resulting from
23 development are increased impervious surfaces (e.g., roads, driveways, rooftops, and
24 parking lots); loss and fragmentation of wildlife habitat; degradation of air and water
25 quality; and stress on infrastructure, water availability, and water supply. Minimizing
26 these impacts will require regional coordination. The TMRPA is responsible for the
27 preparation and implementation of a regional plan that addresses land use planning,
28 natural resource management, and infrastructure and service provision for all of
29 Washoe County. Developments that are not in conformity with the regional plan are not
30 approved.
31

1



Source: Truckee Meadows Regional Planning Agency, 2007

Figure 3-63. Regional Development Constraints

2



No-Action Alternative

Under the No-Action Alternative, anticipated development along the Pyramid Highway corridor would continue based on market forces and in accordance with the city and county plans described in Section 3.1 *Land Use*. Future traffic demand on major roadways, including Pyramid Highway, Sparks Boulevard, and McCarran Boulevard, would exceed capacity, resulting in congestion, increased travel times and associated travel costs, increased emissions associated with traffic congestion, and reduced quality of life.

All Build Alternatives

As discussed in Section 3.1 *Land Use*, all build alternatives would require the conversion of lands into transportation uses and result in the acquisition of property currently in, or planned and zoned for, other land uses. Most of these lands currently are vacant. Areas along or near the existing Pyramid Highway generally are planned for residential or commercial development, while most areas west are in BLM or DRI/TMCC ownership.

Despite conversion of land, the build alternatives would provide improved access and circulation, and support land use planning goals found in the relevant land use plans.

Most lands in the Study Area are currently planned for development, with the exception of BLM land. Improvements to Pyramid Highway are expected to provide infrastructure to support the growth but not induce it. Section 3.1 *Land Use* has a discussion on induced growth. Despite the recent economic decline, the Regional Study Area has experienced a consistently high historical growth rate as a result of many other economic factors like mining, connectivity to national transportation routes, state tax laws, and tourism. Although economic recovery may take several years, growth in association with these industries is projected to continue in the future. Consequently, growth is expected to occur with or without the project. The construction of any of the build alternatives would not contribute noticeably to cumulative land use impacts in comparison to what is already anticipated through land development projects and other roadway improvements. Construction of a new interchange and connector would provide additional accessibility and may influence the rate, intensity, and location of development. This ultimately would result in more intense development along the transportation corridor, as discussed in Section 3.1 *Land Use*.

3.24.7.2 Water Resources and Water Quality

The Regional Study Area is within the 1,190-square-mile Truckee River Watershed. The watershed is part of the larger Truckee River Basin and is influenced mainly by the Truckee River, which flows from Lake Tahoe northeast to Pyramid Lake. Most of the water that flows into the Truckee River in Nevada is generated on the eastern slopes of the Carson Range. Overall, Truckee River water quality is normally excellent. Surface water is of exceptional quality because base flows are composed of Sierra Nevada

Mountain snowpack runoff and seepage or spring flow (WRWC, 2011). Water quality impairments in some sections of the river occur due to turbidity events during periods of flooding and/or algae growth associated with low flows and warm temperatures in summer (WRWC, 2011). Major surface waters in the Study Area include the Orr Ditch, constructed in the late 1800s to provide irrigation water to Truckee Meadows, and the Spanish Springs area and North Truckee Drain Ditch, constructed in the early 1900s to provide irrigation water to north Reno, Sparks, and Spanish Springs (both described in Section 3.10.2 *Existing Conditions Surface Waters*).

The Western Regional Water Commission (WRWC) developed the *Comprehensive Regional Water Management Plan* for Washoe County in 2011. It covers municipal and industrial water supply, water quality, sanitary sewerage, sewage treatment, stormwater drainage, and flood control. The overall purpose is to deal with current and future problems affecting the Regional Study Area as a whole (WRWC, 2011).

Water demands in the Truckee Meadows have historically been managed by the water purveyor by converting agricultural water rights and augmenting those river supplies with privately owned storage water in Independence Lake and Donner Lake during dry years. In the late 1960s, the groundwater development program commenced to help balance growing demands within the region's widespread and multi-elevation distribution system. In the late 1970s, planning for future water resources in the area required more concerted efforts because of accelerated growth in and around the Truckee Meadows, as well as extensive litigation over the water rights of the Pyramid Lake Paiute Tribe and the Endangered Species Act, which delayed and ultimately prohibited the implementation of Stampede Reservoir as a drought supply option. Over time, water demands have decreased, resulting in slower water demand growth, as illustrated in Figure 3-64. Based on the review of current growth and economic trends in the region, future water demand is anticipated to grow in the Regional Study Area but at a slower pace than historically seen (TMWA, 2010).

Cumulative impacts to water supply and water quality would primarily result from changes in hydrologic conditions caused by development in the Regional Study Area. Development directly consumes the water supply, can increase the need for wastewater treatment, and impacts stormwater quality and quantity as a result of an increase in impervious surfaces. Impacts that follow include species loss, oxygen depletion, lower groundwater levels, increased peak flows, and flooding. The Regional Water Management Plan identifies these regional water supplies and water quality issues and provides policies and recommendations to address these concerns as discussed below.

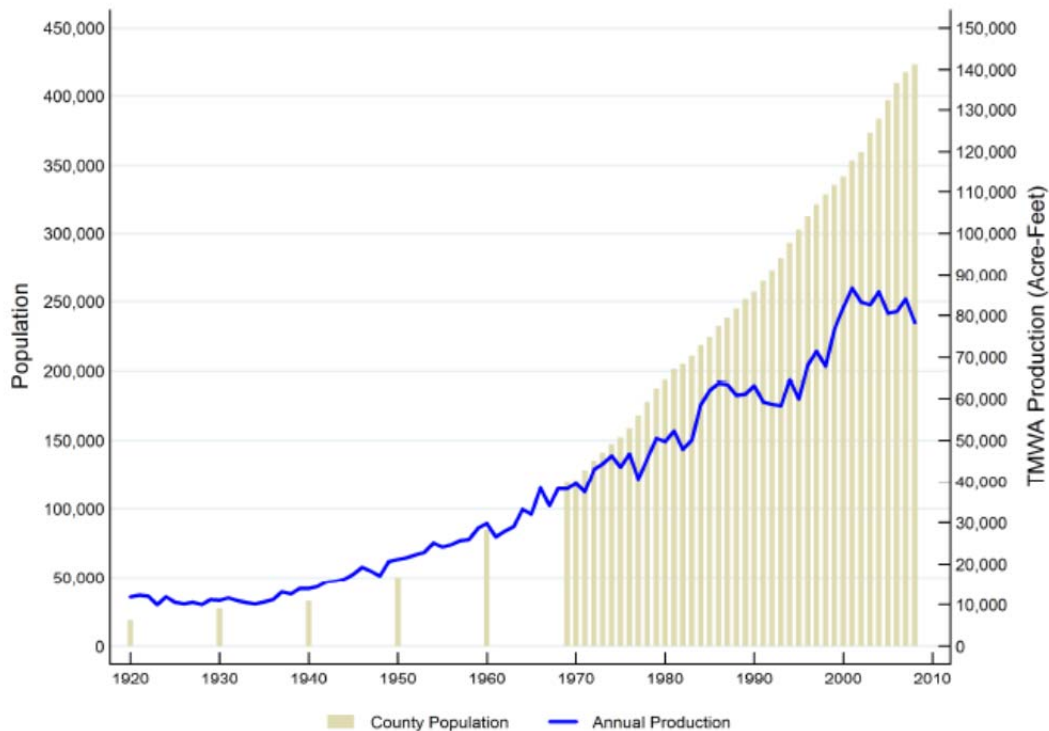


Figure 3-64. Historic Water Consumption and Washoe County Population

According to the 2011 *WRWC Comprehensive Regional Water Management Plan*, the Regional Study Area overall has available water resources to meet the projected 2030 increase in water demand, particularly for the Truckee Meadows, Sparks, and South Truckee Meadows Planning Areas. In several areas, however, there are water supply imbalances that will need to be addressed over the long term. In particular, the demands from domestic wells and permitted municipal groundwater pumping in Cold Springs Valley, Lemmon Valley, and Spanish Springs Valley exceed the respective State Engineer estimates of perennial yield of each basin. This is an issue that affects both existing and future water users, and exists under both current and projected 2030 conditions (WRWC, 2011).

The most imminent threats to the reliability of the Regional Study Area's water supplies are weather and source water supply contamination, both of which may affect the quantity and quality of available water supplies. Numerous purveyor programs are in place to address existing problems and threats having the potential to affect available water supplies (WRWC, 2011).

To protect the limited water supply, each jurisdiction in the Regional Study Area has implemented water conservation ordinances that are expected to remain in effect. All

public purveyors in the Regional Study Area are essentially fully metered and can monitor water use. Additionally, there are plans for increased use of reclaimed water to increase the water supply. So that water supplies can serve existing and future demand, new development cannot be approved until proof of valid and adequate water rights are provided by the applicant. Local water purveyors, such as Washoe County Department of Water Resources or Truckee Meadows Water Authority, cannot deliver more water than is allowed by water rights and drought reserves, for any purpose, including growth (WRWC, 2009).

According to the *WRWC Comprehensive Regional Water Management Plan*, long-term disposal and reuse of treated wastewater will be a challenge throughout the different Planning Areas. Cold Springs and Lemmon Valley generally have sufficient disposal capacity to meet the projected needs until 2030. In the Central Truckee Meadows, Sparks and Spanish Springs areas, discharge to the Truckee River may be limited in the future, and additional disposal capacity will be required. A long-term plan for infrastructure upgrades to accommodate future growth has been identified (WRWC, 2009).

As discussed in Section 3.10 *Water Resources and Water Quality*, there are two active municipal separate storm sewer systems (MS4) permits. These permits allow the discharge of municipal stormwater runoff to waters of the U.S. One permit is the statewide permit held by NDOT; the other is a joint permit held by the City of Reno, the City of Sparks, and Washoe County. These permits require the development and implementation of a stormwater management program to reduce the discharge of pollutants to the maximum extent practicable. The permit covers municipal storm drainage systems in the Truckee Meadows that consists of more than 9,100 catch basins, 300 miles of underground storm drain pipes, 100 miles of open ditches, and a number of wet pond structures and dry pond detention basins that are used primarily for flood control. The Truckee Meadows Regional Storm Water Quality Management Program was prepared for the Truckee Meadows Storm Water Permit Coordinating Committee in November 2011 and identifies education, monitoring, BMPs, and reporting programs for the Regional Study Area.

No-Action Alternative

Future development would occur regardless of whether improvements to the Pyramid Highway corridor are constructed. With the No-Action Alternative, the water supply demand, waste water quantity, and the amount of impervious surface would all continue to increase as planned development occurs. Water supply would continue to be an issue, but the measures identified in the *Comprehensive Regional Water Management Plan* would manage water consumption. Also, state law would ensure that new developments were not approved without adequate water rights. New waste water facilities would be required, and implementation would occur as identified in the *Comprehensive Regional Water Management Plan*. Impacts to water quality within the Regional Study Area would result from an increase in surface runoff and pollutants being carried into the Truckee River. Implementation of the Truckee Meadows Regional



Storm Water Quality Management Program would reduce potential water quality impacts.

All Build Alternatives

Implementation of any of the build alternatives is not expected to induce growth beyond what is already planned in the Regional Study Area and, therefore, would not contribute to a cumulative impact on water supply or an increase in wastewater demands. Similar to the No-Action Alternative, water supply would continue to be an issue; but the measures identified in the Comprehensive Regional Water Management Plan would manage water consumption.

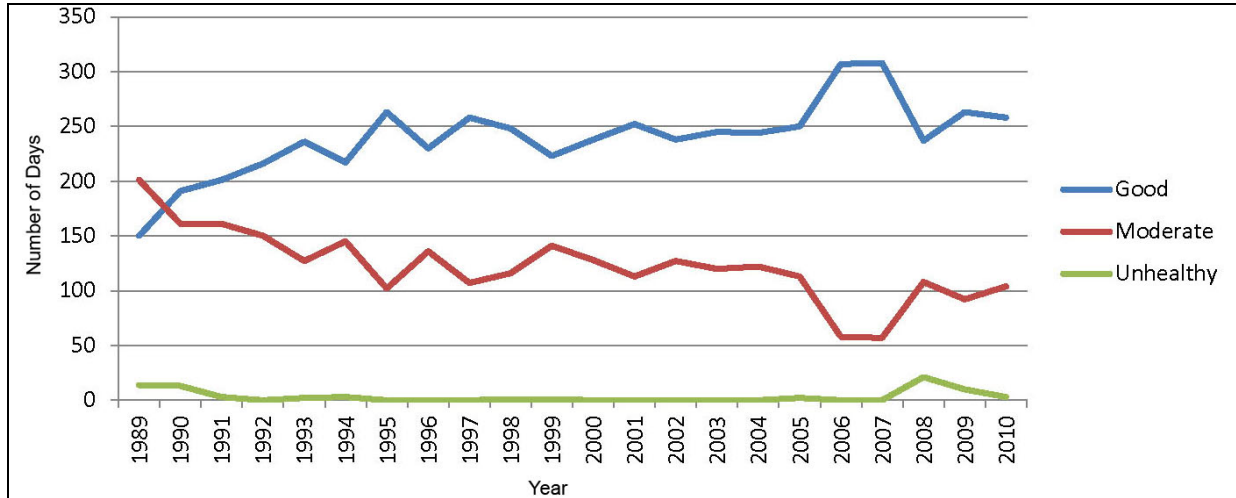
The build alternatives are not expected to induce growth beyond that already planned in the Regional Study Area.

Implementation of any of the build alternatives would add 391 to 395 acres of impervious surface. Stormwater runoff from the build alternatives would be directed to permanent water quantity/quality basins and structural controls. Through the implementation of these mitigation measures no degradation to the surface water quality or beneficial uses of the Truckee River is anticipated. All of the build alternatives would have a minimal increase in the impervious surface in the Study Area when compared to what is expected from planned development. After implementation of BMPs identified in Section 3.10 *Water Resources and Water Quality*, none of the build alternatives would substantially contribute to cumulative water quality impacts on the Truckee River.

3.24.7.3 Air Quality

The Washoe County Health District – Air Quality Management Division began monitoring ambient air quality in Washoe County in the 1970s. Data since that time, depicted in Figure 3-65, generally show that pollution emissions controls and programs instituted as a result of the Clean Air Act and its amendments have been successful in reducing criteria pollutant levels and improving air quality.

A portion of the Regional Study Area is located within Washoe County Hydrographic Area 87 (see Section 3.8 *Air Quality*), which is currently designated as a non-attainment area for particulate matter less than 10 microns (PM₁₀), maintenance area for carbon monoxide (CO), and attainment area for all other criteria pollutants. The EPA has determined that the Truckee Meadows area of Washoe County had attained the CO National Ambient Air Quality Standards (NAAQS) by the applicable attainment date (1995) and has continued to attain since that time (Washoe County District Health Department, 2005). Based on air quality monitoring data, the Truckee Meadows violated the 24-hour PM₁₀ NAAQS as recently as 2001. However, the long-term trend has been a decline in ambient PM₁₀ exceedances. Since 2002, the Truckee Meadows has attained the NAAQS, and in 2009 requested redesignation as a maintenance area (Washoe County District Board of Health, 2009).



Source: Washoe County Health District, 2011 and 2000.

Note: In June/July 2008 air quality was adversely impacted by major wildfires in Northern California; otherwise, the general trend has been toward improvements in air quality with more good days and fewer moderate and unhealthy days each year.

Figure 3-65. Regional Study Area Air Quality Trend, 1989 to 2010

In Washoe County, events that most frequently lead to air quality exceedances include major snow storms followed by very cold weather, which leads to an inversion and increased particulate matter in the air due to the mobilization of sand and salt used on the road for deicing; use of wood burning stoves in the winter that release particulate matter; and major summer wildfires that result in particulate matter in the air. The Washoe County Health Department has developed State Implementation Plans (SIP) for both CO and PM₁₀ that include measures to reduce both PM₁₀ and CO. Rigorous adherence to reduction programs and precursor emissions controls are anticipated to prevent future air quality deterioration. The State of Nevada has implemented several programs to reduce air emissions from mobile sources as control strategies and contingency measures for non-attainment and maintenance areas. These programs include the Federal Motor Vehicle Control Program, Nevada's Motor Vehicle Inspection and Maintenance Program, Washoe County Oxygenated Fuel Program, Street Sanding and Sweeping Program, and Dust Control (Washoe County District Board of Health, 2005 and 2009).

Because emissions from motor vehicles make a contribution to air pollution, the Clean Air Act also requires that transportation officials make a commitment to programs and projects that will help achieve air quality goals. Among these goals are providing for greater integration of the transportation and air quality process; ensuring that transportation plans, programs, and projects conform with the SIP and contribute to attainment of the established air quality standards; and reduction in the growth in VMT and congestion in areas that have not attained the EPA's air quality standards. The



proposed project is federally funded and is included in the RTC's 2030 RTP and the 2014 TIP. Prior to adoption of the 2030 RTP, RTC demonstrated that the region would be able to conform with the NAAQS in 2030 after implementation of the long-range transportation plan, which includes this project.

The past and projected growth in population and vehicle miles traveled in Washoe County is well-documented throughout the 2030 RTP. According to the 2030 RTP, a strong commitment to fund and implement feasible traffic control measures must be made if acceptable air quality standards are to be sustained. The local jurisdictions and NDOT, through the RTP process, have made the commitment to fund such traffic control measures as ridesharing, traffic flow improvements, signal coordination, and conversion of public transit and paratransit fleets to cleaner burning fuels. Based on existing and planned commitments, the air quality analysis conducted in the 2030 RTP demonstrates that the required air quality conformity determination can be made and the 2030 RTP has been shown to be in conformance with federal air quality regulations (RTP, 2008).

As discussed in Section 3.8 *Air Quality*, under NEPA, detailed environmental analysis should be focused on issues that are significant and meaningful to decision-making⁷. FHWA has concluded, based on the nature of greenhouse gas (GHG) emissions and the exceedingly small potential GHG impacts of a proposed action, that the GHG emissions from the proposed action will not result in "reasonably foreseeable significant adverse impacts on the human environment" (40 CFR 1502.22(b)). The GHG emissions from the project build alternatives will be insignificant, and will not play a meaningful role in a determination of the environmentally preferable alternative or the selection of the preferred alternative. In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable." To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probably future projects. However, to gather sufficient information on the global scale of all past, current, and future projects to make this determination is a difficult if not impossible task (40 CFR 1502.22[b]). More detailed information on GHG emissions "is not essential to a reasoned choice among reasonable alternatives" (40 CFR 1502.22(a)) or to making a decision in the best overall public interest based on a balanced consideration of transportation, economic, social, and environmental needs and impacts (23 CFR 771.105(b)). For these reasons, no alternatives-level GHG analysis has been performed for this project.

No-Action Alternative

Under the No-Action Alternative, congestion along Pyramid Highway, Sparks Boulevard, and McCarran Boulevard would occur and result in increased emissions. However, modeling indicates that the No-Action Alternative would not cause or contribute to any new localized CO violations, increase the frequency or severity of any

⁷ See 40 CFR 1500.1(b), 1500.2(b), 1500.4(g), and 1501.7

exiting violations, or delay timely attainment of the CO NAAQS. Implementation of point, non-point, and mobile emission reduction measures identified in the 2030 RTP and SIP would reduce the potential for future cumulative air quality impacts in the region.

All Build Alternatives

VMT are anticipated to increase along the Pyramid Highway corridor as a result of increased capacity provided by all of the build alternatives. The increase in VMT is anticipated to increase emissions of all air pollutants, including MSAT, PM₁₀ and CO, along the Pyramid Highway corridor compared to the No-Action Alternative. Any incremental emissions impacts to air quality from the build alternatives would be small compared to current pollutant emissions levels, and none of the build alternatives are anticipated to substantially contribute to cumulative air quality impacts. According to the Truckee Meadows CO SIP, VMT is projected to increase approximately 2,256 vehicles from 2002 to 2016. However, projected CO emissions are anticipated to decline by 19 percent compared to 2002 attainment inventory. These emissions reductions are anticipated as a result of control programs mentioned above. In addition, according to the PM₁₀ SIP, there have been no violations of the PM₁₀ NAAQS since 1999. There was an exceedance in 2005 due to record snowstorms and strong temperature inversions. However, since exceedances of PM₁₀ emissions were less than one per year, Truckee Meadows has attained the PM₁₀ NAAQS in accordance with 40 CFR 50.6.

No build alternative would cause an exceedance of NAAQS criteria. Improved transportation operations under the build alternatives would result in improved air quality compared to the No Action Alternative.

Overall, VMT for the build alternatives represent approximately 13.9 percent of total Nevada travel activity, and the project itself would increase statewide VMT by 0.036 percent. This small increase in VMT would not represent a significant contribution to cumulative GHG emissions.

The project would reduce congestion along Pyramid Highway, Sparks Boulevard, and McCarran Boulevard, which could provide some emissions reductions. The majority of the traffic along these corridors would be free-flowing, which would improve congestion (LOS) and lower some air emissions. The results of the project-level CO hot spot analysis indicate that the project would meet the transportation conformity requirements since none of the build alternatives would cause or contribute to any new localized CO violations, increase the frequency or severity of any exiting violations, or delay timely attainment of the CO NAAQS. This project also would meet the conformity requirements for PM₁₀ because this project is not considered a project of air quality concern.

In addition to improving congestion at intersections along Pyramid Highway, Sparks Boulevard, and McCarran Boulevard, all of the build alternatives would include congestion management elements, such as increased transit service (to serve corridor



demand consistent with the service standards of RTC), new Park and Ride lots, bicycle facilities, carpool lots, and incident management program enhancements. These congestion management efforts would further contribute to a reduction in regional emissions as a result of the increase in VMT and would be consistent with the commitment to implement traffic control measures in the 2030 RTP.

3.24.7.4 Social Considerations (Environmental Justice and Relocations)

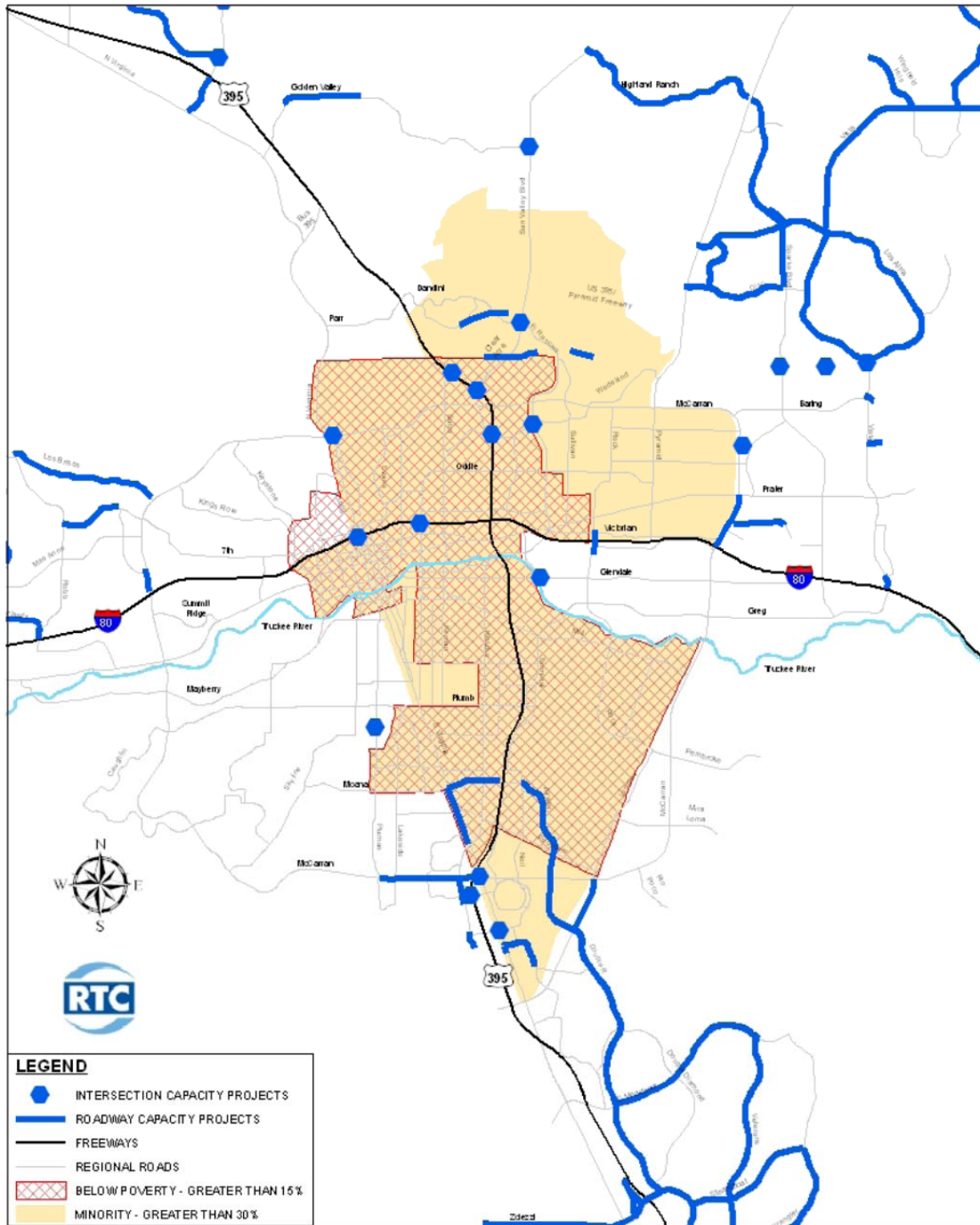
Nevada has been racially and ethnically diverse from its beginnings. When it achieved statehood in 1864, the United States had begun to diversify its immigration sources, and that trend was reflected in Nevada's population. The 1870 Census found that 44.2 percent of the new state's population was foreign-born, the highest figure of any state and over three times the national percentage of immigrants (Wright, 2004). Over time, Nevada and Washoe County have continued to attract a diverse population. Figure 3-66, taken from the 2030 RTP, shows areas within the Regional Study Area with minority populations over 30 percent.

Employment in the Regional Study Area is primarily in the service industry (44 percent) and wages tend to be low (Washoe County, 2010). Consequently, many areas within the Regional Study Area experience relatively high poverty levels. Figure 3-66, from the 2030 RTP, shows areas within the regional study where more than 15 percent of population is below the poverty level. Almost all of the Study Area falls outside of this area.

An EJ analysis was completed for the Regional Study Area as part of the 2030 RTP. The analysis concluded that future planned activities within the Regional Study Area will not cause a disproportionately high and adverse on impact minority or low-income populations. Figure 3-66 and Figure 3-67 show transportation capacity improvements between 1998 and 2008 and transit routes in the Regional Study Area in relation to minority and low-income populations. These graphics establish a pattern that, in the past implementation of the RTC's overall program of projects and activities, disadvantaged groups have received reasonably proportional benefits and borne reasonably proportional burdens (RTC 2030 RTP, 2008).

The 2030 RTP is a needs-driven plan based on land-use. There is no bias towards low or high income areas or towards minority or non-minority areas. The RTC has made great effort to reach all populations and gone beyond any minimums established. Because the plan is needs-driven, the improvements (regardless of mode) are put in place as quickly as financially possible (RTC 2030 RTP).

1



Source: RTC 2008.

Figure 3-66. Transportation Capacity Improvements from 1998-2008 in Relation to Minority and Low Income Populations



1

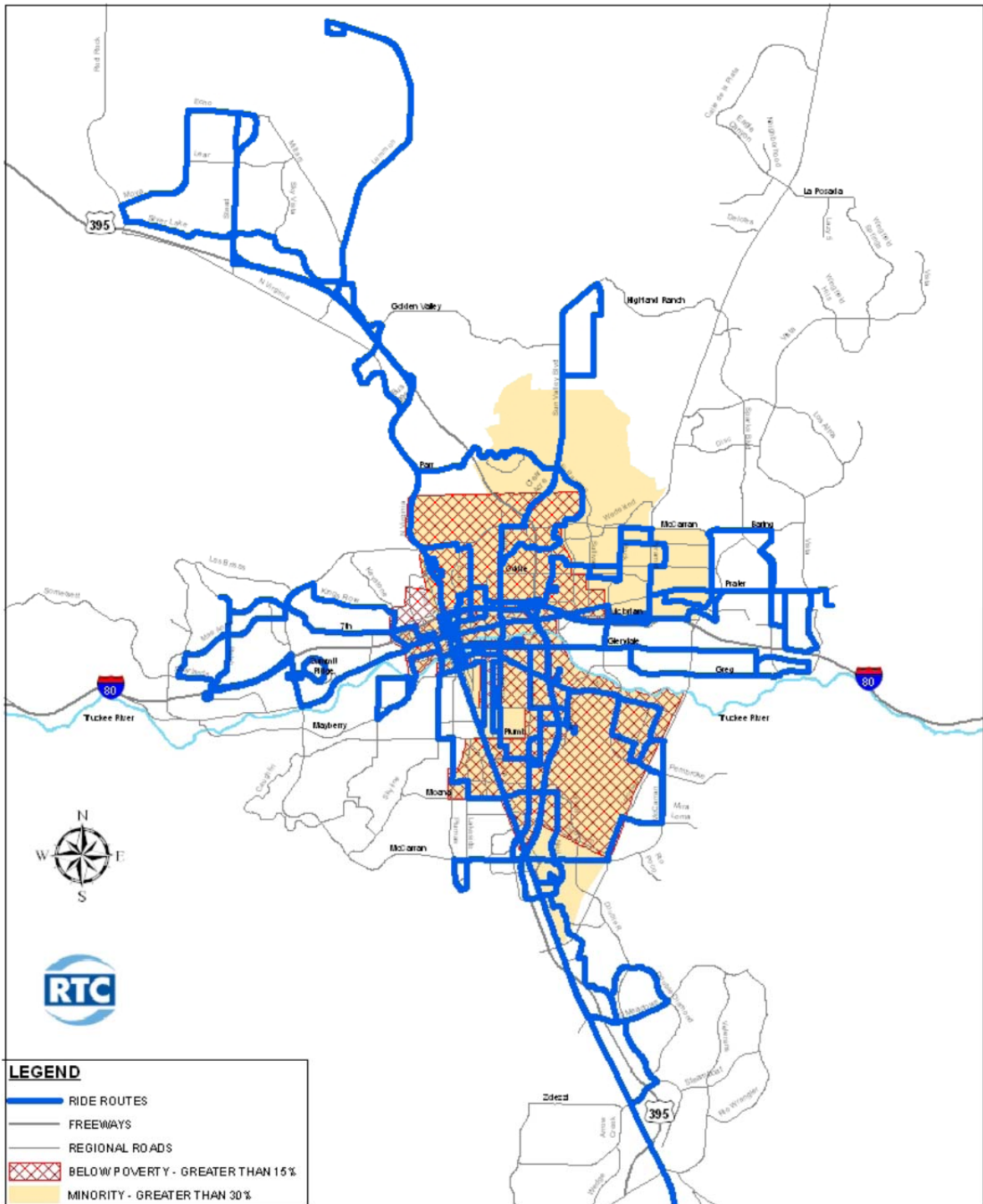


Figure 3-67. RTC Transit Routes in Relation to Minority and Low-Income Populations

2

No-Action Alternative

Future growth and economic development would occur in the regional Study Area regardless of whether or not improvements to the Pyramid Highway corridor are constructed. However, under the No-Action Alternative, the absence of the capacity and access improvements under the build alternatives would adversely affect the long-term growth along the Pyramid Highway corridor. Worsening congestion and safety concerns would make it increasingly difficult to access businesses along the Pyramid Highway corridor. Future economic growth could shift south along the I-80 corridor, where regional access and large parcels of land are available for redevelopment and adequate infrastructure is already in place. EJ populations along the Pyramid Highway corridor would not receive either the benefits or burdens resulting from the project.

Cumulative growth and development in the regional Study Area is expected to provide increased access to services, more jobs, and improved infrastructure, which would benefit EJ populations. Growth and economic development also bring increased air quality emissions, degradation of natural resources, and the potential for gentrification that could price the existing population out of the housing market. Overall, the benefits of growth and economic development are expected to outweigh the impacts. Also, planned growth and development are dispersed throughout the regional Study Area, and no one location is expected to experience disproportionate benefits or burdens.

All Build Alternatives

All build alternatives would result in economic benefits through increased employment, including short-term construction-related employment, as well as long-term employment resulting from economic growth. Also, general access and connectivity would improve under all alternatives through highway and multimodal improvements, thereby increasing economic development potential. The project would result in a number of potential relocations and other planned transportation improvements (shown on Figure 3-60) that would result in more cumulative relocations. Although as discussed in Section 3.5 *Right-of-Way/Relocation* and Section 3.24.6.2 *Growth*, the regional Study Area has a large inventory of available housing that could accommodate these cumulative relocations. All of the build alternatives would adversely impact EJ populations; however, the benefits of the project combined with proposed mitigation measures would offset the burdens.

Overall, the cumulative benefits of growth and economic development are expected to outweigh the cumulative adverse impacts to EJ populations. The build alternatives are expected to have economic and mobility benefits that would extend to the regional Study Area and would support planned growth. Also, planned growth and development are dispersed throughout the regional Study Area, and no one location is expected to experience disproportionate benefits or burdens.

All build alternatives would provide benefits and mitigation that would offset adverse impacts to EJ populations.



3.24.8 Cumulative Effects Mitigation

To avoid additional impacts to the identified resources of concern, local authorities and planning entities must continue to review and scrutinize development proposals to ensure that new development is consistent with local area planning goals. Local planning jurisdictions can reduce environmental impacts through the implementation of:

- Smart growth goals and policies identified in the *Washoe County Master Plan Land Use and Transportation Element*. Smart growth is defined as a collection of land use planning techniques that features compact, mixed-use, sustainable development with the objective of creating more attractive, livable, economically strong communities while protecting natural resources. Within suburban Washoe County, this form of sustainable development will begin to be used to meet the needs of the present without compromising the ability of future generations to meet their own needs (Washoe County, 2011).
- Programs identified in the Washoe County PM₁₀ and CO SIPs to reduce air emissions from mobile sources as control strategies and contingency measures for non-attainment and maintenance areas. These programs include the Federal Motor Vehicle Control Program, Nevada's Motor Vehicle Inspection and Maintenance Program, Washoe County Oxygenated Fuel Program, Street Sanding and Sweeping Program, and Dust Control (Washoe County District Board of Health, 2005 and 2009).
- Water resource policies identified in the *WRWC 2011-2030 Comprehensive Regional Water Management Plan*. This plan provides goals and policies to deal with current and future water problems in the Regional Study Area, including issues related to municipal and industrial water supply, water quality, sanitary sewerage, sewage treatment, storm water drainage, and flood control.
- Education, monitoring, BMPs, and reporting programs identified in the 2011 *Truckee Meadows Regional Storm Water Quality Management Program*. This program has been designed to manage urban stormwater discharge to the Truckee River.

These initiatives can provide economic, social, and environmental benefits to the Regional Study Area. The next step is for local jurisdictions to strictly enforce these principles through their development review process. Local authorities and planning entities should also require appropriate avoidance or mitigation as part of any new development project. Resources most at risk that could be protected are water resources, air quality, and EJ populations. For transportation projects, RTC and/or NDOT will ensure that all best management practices and mitigation measures specified in this Final EIS are followed appropriately.

3.24.9 Summary

Environmental impacts from the build alternatives, when added to past, present, and reasonably foreseeable future projects, would result in additional cumulative impacts to environmental resources of concern. However, the majority of these cumulative impacts area result of the growth and development already expected to occur in the Regional Study Area, with or without any transportation improvements. The construction of a build alternative would not noticeably change the overall cumulative impacts such that significant cumulative impacts would occur.

To avoid additional impacts to the identified resources of concern, local authorities and planning entities must continue to review and scrutinize development proposals to ensure that new development is consistent with local area planning goals. One way the Cities of Reno and Sparks and Washoe County can reduce environmental impacts is through enforcing the requirement for five-acre lots in the Rural Development Area. This limits the amount of developable land, encourages density closer to the urban core, and ensures growth occurs consistent with existing plans and policies.

3.25 BLM RESOURCES

The BLM serves as a cooperating and participating agency for this EIS. Therefore, BLM intends to use this EIS to help meet its NEPA responsibilities for any future conversion of its land, if required. Information that the BLM would require to meet these responsibilities mostly is contained in the various sections of this chapter. Table 3-56 summarizes potential project effects to those resources not addressed elsewhere in this chapter.

Table 3-56. Effects to BLM Resources

BLM Resource	No Action Alternative	Build Alternatives
Areas of Critical Environmental Concern	No impact	No ACECs are identified in the study area according to the 2001 Carson City Consolidated Resource Management Plan (CCCRMP), and, therefore, are not addressed in the EIS.
Human Health and Safety (Herbicide Projects)	No impact	Not applicable to this project.
Lands with Wilderness Characteristics	No impact	No Wilderness or Wilderness Study Areas (WSA) were identified in the study area according to the 2001 CCCRMP. BLM land within the study area is located on the fringe of urban areas with noticeable human presence (nearby road noise, ATV trails, evidence of illegal dumping activities, and powerlines). This BLM land does not offer outstanding opportunities for solitude or primitive recreation, and does not contain ecological, geological, or other features of scientific or educational value. Also, BLM parcels within the study area range from less than one acre to 456 acres, and result in less than 5,000 contiguous acres of BLM land. Therefore, this resource is not addressed in the EIS.
Wild and Scenic Rivers	No impact	No wild and scenic rivers are located in the Study Area, and, therefore, are not addressed in the EIS.



Table 3-56. Effects to BLM Resources

BLM Resource	No Action Alternative	Build Alternatives
Wilderness/WSA	No impact	No Wilderness or WSAs were identified in the Study Area according to the 2001 CCCRMP, and, therefore, are not addressed in the EIS.
Fire Management	No impact	The BLM assigns fire management categories in the 2001 CCCRMP. The study area is within Fire Management Category A, which are areas where wildfires are not wanted, and include threatened and endangered species habitat and the urban/wildland interface. Full wildfire suppression is the objective for this category. The build alternatives would construct a new roadway across BLM land, increasing access to those areas. While this would introduce the risk of roadside fire dangers, it would provide access for emergency response vehicles to area fires and potentially serve as a fire break.
Land Use Authorization	No impact	Applicants for major rights-of-way shall submit a plan of development prior to issuance of a land use authorization that addresses specific construction, operation, maintenance, and/or termination features, which will satisfactorily mitigate the impacts.
Recreation	No impact	According to the 2001 CCCRMP, BLM manages access to public land for motorized and non-motorized travel. All public land under the BLM-Carson City District jurisdiction (where study area is located) is designated open to off-highway vehicle use unless specifically restricted or closed. Under the build alternatives, access to BLM land within the project area would continue to occur from adjacent residential and commercial developments.
Soils	No impact	Geotechnical investigations are being conducted as part of this EIS and continue through final design. No special soil conditions have been identified at this time. Preliminary estimates indicate that the build alternatives would generate between 3.0 million cubic yards (Alt. 3) to 6.4 million cubic yards (Alt. 2) of earthwork material. A viable source for temporary or permanent storage of excess volume has not been identified at this time. Storage and/or disposal areas for excess earthwork, and opportunities to reuse volumes through design refinements, will be evaluated following selection of a preferred alternative. Material excavated from the right-of-way on BLM land would be incorporated into the project or would be disposed in accordance with BLM regulations.
Wild Horses and Burros	No impact	Nearest BLM Herd Management Areas are north of I-80 at Granite Peak and Dogskin Mountains according to the 2001 CCCRMP. Therefore, this resource is not addressed in the EIS.
Paleontological Resources	No Impact	According to a search of the Geologic Map of Nevada, the primary geologic units along the proposed alignment include Quaternary alluvial deposits, Cretaceous granitic rocks, and igneous volcanic deposits. These units have a low potential for yielding significant fossil remains (Stewart and Carlson 1978).

3.26 MITIGATION MEASURES

3.26.1 Land Use

If a build alternative is selected in the Record of Decision, the Lead Agencies will seek to avoid and minimize impacts to existing development during final design. Also, RTC and/or NDOT will work with local planners to incorporate a build alternative into future land use plans and modify future land use and zoning as needed.

The Lead Agencies will continue to identify ways to avoid and minimize impacts to all resources during the final design process, should a build alternative be selected.

Conversion of BLM land for the US 395 Connector would not require a revision to BLM's management plan; BLM would reflect the highway project in future plan revisions.

Because BLM land that would be affected by the proposed action is not actively grazed, no effects to grazing allotments are anticipated. Effects to any grazing allotment and/or permits and necessary mitigation measures would be further investigated during later stages of project development, including Final EIS preparation, final design, and the right-of-way process.

No mining or mineral claims are currently located within the Study Area. If valid mineral claims have occurred within the preferred alternative alignment (if a build alternative is selected as the preferred alternative) on the date of the Letter of Consent appropriating the right-of-way, NDOT will obtain permission as may be necessary from claim holders to account for such claims within the right-of-way.

3.26.2 Social Resources

The Lead Agencies will seek to mitigate social impacts from the build alternatives. Measures to mitigate for impacts to the Sun Valley and other neighborhoods are discussed in Section 3.26.3 *Environmental Justice*.

3.26.3 Environmental Justice

As part of a comprehensive mitigation package, RTC and/or NDOT will:

- Provide screening walls in the following minority and low-income neighborhoods, if desired by these communities, to screen views of roadway improvements:
 - ◆ Sun Villa Estates (all build alternatives)
 - ◆ Mobile Glen Estates(all build alternatives)
 - ◆ Sun Valley Estates(all build alternatives)
 - ◆ Ross Park Estates (Alternatives 1 and 4)



- ♦ High County Estates (Alternatives 1 and 4)
- ♦ Oasis Mobile Estates and Blue Gem Estates (Alternatives 2 and 4).
- ♦ Final placement for any such screening walls will be evaluated during final design.
- Provide landscaping and aesthetic treatments, as well as signage improvements along Sun Valley Boulevard as part of development of a gateway concept.
- Provide specific bicycle/pedestrian improvements around the Sun Valley Boulevard interchange area, as described in Section 3.7 *Pedestrian and Bicycle Safety*.
- Provide sidewalks and bicycle lanes on the realigned Dandini Boulevard in Sun Valley.
- In accordance with RTC transit planning, consider providing bus turnouts and bus stop amenities for existing transit service within project limits. Work with the community on locations of these turnouts.

Another mitigation measure being discussed between RTC and the Sun Valley community would involve, as part of project construction, providing fill material at a location provided by the Washoe County School District in proximity to the connector for a future middle school.

3.26.4 Economic Resources

New access will be provided for properties where existing accesses are removed. Although some businesses may have changes in access due to the project, RTC and/or NDOT will work to ensure that some form of access is provided to all businesses. To avoid disruption of business activities during construction, the new access will be provided before the existing access is removed.

A traffic control plan will be developed to minimize interference to traffic flow from construction equipment and activities. RTC and/or NDOT will provide advance notice to emergency service providers, local businesses, and residents with regard to road delays, access, and special construction activities. These notifications will be accomplished through radio and public announcements, newspaper notices, on-site signage, RTC's website, and during public meetings, when possible. To minimize disruption to traffic and local businesses, construction activities will be staged and work hours varied. Throughout the construction stage, access will be preserved for each affected business. Where feasible, retaining walls will be constructed along Pyramid Highway to minimize impacts to commercial development.

3.26.5 Right-of-Way/Relocation

The Lead Agencies will prepare a comprehensive relocation/acquisition plan before or during final design, which will be administered by NDOT and adhere to NDOT right-of-

way requirements. Refer to the *Social Considerations, Right-of-Way/Relocation Impacts, and Environmental Justice Technical Report* (RTC, 2012) for details.

Any right-of-way acquisition will comply with the Uniform Relocation Assistance and Real Property Acquisitions Policies Act of 1970, as amended (URA) Section 205(a). The purpose of the Uniform Act is to provide uniform and equitable treatment of all persons displaced from their homes, businesses, or farms and establishes criteria for proper acquisition and relocation benefit impacts. The Uniform Act requires that persons to be displaced be provided with information they will need to minimize the disruption of moving and maximize the likelihood of a successful relocation. Relocation assistance payments are designed to compensate displaced persons for costs that are the result of acquisition of the property upon which they reside. The criteria contained in Nevada Revised Statutes Section 342 also provide guidance that is applicable to potential relocations within the Study Area by outlining specific services and assistance that must be provided by the governing body.

All reasonable opportunities to avoid relocations and minimize the acquisition or impacts to private property will be taken during the final design stage. Also, the Lead Agencies will make all effort to relocate affected dwelling units and businesses within or near the community that they currently reside. All efforts will be made so that those displaced will be afforded with properties that are comparable in size, safety, sanitary conditions, and overall decency and functionality with those being acquired.

In addition to the Federal Uniform Relocation Assistance and Real Property Acquisitions Policies Act of 1970, as amended, the Lead Agencies may offer benefits and assistance to affected businesses and residents to help make sure relocations occur in a timely manner. Also, at the beginning of the right-of-way acquisition process, investigation of the special needs of all parties being relocated or selling a portion of their land will be provided with the goal being to accommodate these special needs, as required.

Due to the current housing situation, some homeowners have negative equity in their homes. The Uniform Act was passed to ensure that displaced persons “shall not suffer disproportionate injuries as a result of programs and projects designed for the benefit of the public as a whole and to minimize the hardship of displacement on such persons” (42USC 4621(b)). FHWA has instituted a temporary Programmatic Waiver of 49 CFR 24.401(b)(1) – Calculation of Replacement Housing Payment for Negative Equity (FHWA April 7, 2009; waiver expiration extended through December 31, 2014) that allows NDOT to acquire homes with negative equity without reducing other provided benefits. Because the economic downturn has caused a sharp decline in Study Area property values, many affected home owners have negative equity. As part of a larger compensation package, the FHWA waiver would help relieve the debt of relocated homeowners caused by property value declines.



1 For RSIC trust land acquisition, a “Tribal Resolution” would be required from the
2 specific tribal council governing that land and a Letter of Decision would be required
3 from BIA.

4
5 A mobile/manufactured home classified as real property would be appraised and
6 acquired under the acquisition process. The occupants would be eligible for the same
7 moving and replacement housing benefits as occupants of residential dwellings. The
8 *NDOT Right-of-Way Manual* (NDOT, 2011) provides further information regarding
9 moving and replacement expenses.

10 **3.26.6 Pedestrian and Bicycle Safety**

11 RTC and/or NDOT will employ the following measures to mitigate temporary
12 construction impacts to bicycle and pedestrian facilities:

- 13
- 14 • Provide detours during construction to maintain continued use of existing bicycle
15 and pedestrian facilities.
- 16 • Conduct a public information program to notify bicyclists and pedestrians of
17 planned closures and/or detours.
- 18 • Use signage to direct bicyclists and pedestrians to temporary detours.
- 19 • Provide construction fencing to protect bicyclists and pedestrians from construction
20 areas.
- 21 • Because informal trails are not managed or maintained for recreational use, no
22 mitigation is necessary

23 **3.26.7 Air Quality**

24 This project meets the CAA and its amendment conformity requirements and is not
25 expected to exceed the NAAQS. Therefore, mitigation measures are not required.

26
27 There are regional and local agency strategies that could be used to reduce criteria
28 pollutants and MSAT emissions, especially diesel particulate matter from existing diesel
29 engines. These include, but are not limited to:

- 30
- 31 • Tailpipe retrofits.
- 32 • Closed crankcase filtration systems.
- 33 • Clean fuels.
- 34 • Engine rebuild and replacement requirements.
- 35 • Contract requirements.

- Anti-idling ordinances and legislation.
- Truck stop electrification programs.
- Aggressive fleet turnover policies.

Implementation of a vehicle purchase/recycle program would also help to reduce air pollution in the Study Area by reducing highly polluting vehicles off the road.

Even though project-level mitigation measures will not have a substantial impact on global GHG emissions because of the exceedingly small amount of GHG emissions involved, the measures during construction, as discussed below, will have the effect of reducing GHG emissions. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. In addition, with such innovations as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

These activities are part of a program-wide effort by FHWA to adopt practical means to avoid and minimize environmental impacts in accordance with 40 CFR 1505.2(c).

The project area will be subject to a dust control permit from the WCAQMD (regulation 040.030 of the District Board of Health Regulations). A Dust Mitigation Plan will also need to be prepared and submitted. Practical measures to control dust, such as watering of construction areas, will be incorporated into the plans and specifications for the construction phase of the project in accordance with NDOT's Standard Specifications for Road and Bridge Construction.

RTC and/or NDOT will require mitigation measures for construction activities associated with any of the build alternatives. These measures may include:

- Preparing an air quality mitigation plan that describes all feasible measures to reduce air quality impacts resulting from construction activities.
- Requiring all construction contractors to:
 - ♦ Obtain a Dust Control Permit from the Washoe County District Health Department, Air Quality Management Division.
 - ♦ Be in compliance with the National Pollutant Discharge Elimination System (NPDES) General Permit for erosion control due to stormwater and construction-



related runoff from the construction sites. As part of this compliance, the contractor will be required to submit and maintain a Storm Water Pollution Prevention Plan (SWPPP) on site that will include BMPs to be implemented and maintained during construction.

- ◆ Ensure that all construction equipment is properly tuned and maintained.
 - ◆ Limit vehicle speeds to 15 mph on work sites, unpaved roads, and in parking areas.
 - ◆ Cover haul trucks when transferring materials.
 - ◆ Install trackout control devices at access points to minimize trackout dirt.
 - ◆ Minimize Idling time to 10 minutes to save fuel and reduce emissions.
 - ◆ Have an operational water truck on site at all times. Water will be applied to control dust as needed to prevent dust impacts off site.
 - ◆ Use existing power sources or clean fuel generators rather than temporary power generators.
 - ◆ Minimize obstructions of through traffic lanes, including accommodating two directional traffic on existing street during construction. Construction will not be allowed in existing signalized intersections during AM and PM peak commuting hours. Flaggers will be provided to guide traffic properly to minimize congestion and ensure safety at construction sites.
- Traffic control plans will be developed for work on existing road facilities to maintain traffic during construction and to minimize traffic flow interference from construction equipment movement and activities. Plans may include advance public notice of road construction, detours, alternate routes, use of public transportation, and satellite parking areas with a shuttle service. Operations affecting traffic for off-peak hours will be scheduled whenever reasonable.

3.26.8 Traffic Noise

During final design, further analysis will be conducted to consider site-specific conditions and evaluate interior noise levels per policy for the Hillside Foursquare Church of Reno, Spanish Springs Library, Northern Nevada Teen Challenge, and the Renown Health Urgent Care.

Traffic noise barriers were modeled at 12 feet tall along the US 395 roadway shoulder adjacent to the Whittel Pointe Apartments, the right-of-way line adjacent to the Willow Creek Subdivision, and the Pyramid Highway roadway shoulder adjacent to individual receptors and the Springwood Subdivision. All of the traffic noise barriers in the areas mentioned above meet the 5 dBA acoustically feasible noise reduction criteria for at least 75 percent of the first row impacted receptors. Table 3-57 summarizes the traffic noise barrier analysis for these barriers.

Table 3-57. Summary of Traffic Noise Barrier Analysis for All Build Alternatives

Traffic Noise Barrier No.	Length of Barrier (feet)	Height of Barrier (feet)	Total Cost of Barrier	Total # of Impacted Receptors (First Row)	Total # of benefited Receptors (First Row*)	Percentage of First Row Impacted and Benefited Receptors†	Cost per Benefited Receptor
Whittell Pointe Apartments							
3	1,500	14	\$798,000	5 buildings (40 units)	4 buildings (32 units)	80%	\$24,938
Willow Creek Subdivision							
4	1,500	12	\$684,000	5 (5)	20 (5)	100%	\$34,200
Individual Receptors and Springwood Subdivision							
6a	1,500	12	\$684,000	12 (7)	38 (8)	78%	\$32,400
6b	1,200	12	\$547,200				
Total	2,700	12	\$1,231,200				

* Number in parenthesis represents number of benefited first row receptors that are also impacted.

† A noise barrier must benefit at least 75% of the impacted first row receptors.

At this time, the evaluated Traffic Noise Barriers 3, 4, 6a and 6b meet the acoustically feasible criteria and two out of three reasonableness criteria for the impacted receptors in the Whittell Pointe Apartments, Willow Creek Subdivision, and Springwood Subdivision. In addition, the Traffic Noise Barriers 8 and 9d meet the acoustically feasible criteria and two out of three reasonableness criteria for the impacted receptors in the Oasis Mobile Estates, Blue Gem MHC, and Spring Ridge Subdivision for Alternatives 2 and 4.

Final analyses and proposed traffic noise abatement will be contingent on the preferred alternative, revisions to input parameters, further refinement of conditions, and complying with regulatory and policy requirements. During the public involvement process, RTC and/or NDOT will solicit input from the benefited receptors regarding the proposed noise barriers.

During construction, RTC and/or NDOT will implement the following measures to aid in mitigating temporary noise impacts:

- Limit construction activities to workday off-peak hours as best possible.
- Use noise blankets or other muffling devices on equipment and quiet-use generators at noise-sensitive receptors.
- Use well-maintained equipment and have equipment inspected regularly.
- Locate stationary sources as far from sensitive receptors as practicable.



3.26.9 Water Resources and Water Quality

RTC and/or NDOT will implement a series of measures to avoid, minimize, and mitigate impacts to water resources and water quality from the build alternatives. Specifically, RTC and/or NDOT will:

- Implement BMPs during construction. As part of the development of BMPs for the project, NDOT's construction contractor must file a Notice of Intent with NDEP's Bureau of Water Pollution Control to obtain coverage under the General Permit for Stormwater Discharges Associated with Construction Activity (NVR100000). A Stormwater Pollution Prevention Plan (SWPPP) will be developed before the Notice of Intent is submitted. The SWPPP will outline temporary and permanent erosion and sediment controls, locate stormwater discharge points, and describe BMPs to be implemented to prevent or reduce stormwater pollutant discharge associated with construction activities to the maximum extent practical.
- Implement temporary erosion control and stormwater control measures during construction per the NDOT Storm Water Quality Manuals.
- Design post-construction BMPs per the requirements of the NDOT Storm Water Quality Manuals.
- Obtain a Section 401 Water Quality Certification issued by NDEP, Bureau of Water Quality Planning, as required for water quality assurances if a Section 404 Department of the Army permit is issued by the U.S. Army Corps of Engineers. If construction equipment is required to enter in or near Waters of the State and/or ephemeral stream channels, the contractor will obtain a Temporary Working in Waterways Permit issued by NDEP, Bureau of Water Pollution Control.
- As part of the Final EIS, RTC and NDOT will coordinate with local agencies and municipalities to determine the necessary permanent water quantity/quality basins and other structural BMPs, and locations, to maintain compliance with applicable water quality regulations.
- Continue coordination with TMWA, NDEP, and the Washoe County of Department of Water Resources to avoid and minimize impacts to public groundwater wells and well head protection areas. This includes relocation of Desert Springs Well #2, which will require a site and/or sites of equal water quality and yield, and access considerations for maintenance of Spring Creek Well #2.

3.26.10 Wetlands and Waters of the U.S.

During final design, the Lead Agencies will seek to further avoid and minimize impacts to wetlands and waters of the U.S. Avoidance measures to be considered include construction of retaining walls, steepening of construction slopes, and using bridge structures instead of culverts where feasible.

Per the USACE and EPA Compensatory Mitigation for Losses of Aquatic Resources Final Rule (Final Rule) (40 Code of Federal Regulations [CFR] Part 230) (Final Rule) (2009), the USACE is taking an “environmentally preferable” approach to the mitigation of impacts to waters of the U.S. The Final Rule states that the USACE will “assess the likelihood for ecological success and sustainability, the location of the compensation site relative to the impact site and their significance within the watershed” when making mitigation determinations, and “compensatory mitigation requirements must be commensurate with the amount and type of impact that is associated with the particular...permit.”

Per Section 404 of the CWA, impacts to wetlands and other water features must be avoided, minimized, or mitigated (in order of preference). Although the Act requires compensatory mitigation only from those wetlands and other water features considered jurisdictional by the USACE, it is FHWA policy to mitigate all wetland impacts (jurisdictional and non-jurisdictional). All impacted wetlands and other water features will be mitigated in accordance with current USACE mitigation policies and the conditions of the USACE Section 404 Permit.

RTC and/or NDOT will use BMPs to offset the extent and duration of any temporary or indirect impacts. Appropriate BMPs to prevent and minimize temporary or indirect impacts to wetlands will be followed during construction. These BMPs could include:

- Protect wetland areas not impacted by the project from construction activities by temporary and/or construction limit fencing.
- Install sediment control measures where needed to prevent sediment filling wetlands.
- Prohibit fertilizing or hydro-mulching within 50 feet of a wetland.
- Reclaim and revegetate disturbed areas with native grass and forb species. Seed, mulch, and mulch tackifier will be applied in phases throughout construction.
- Develop a stormwater management plan with appropriate BMPs to minimize adverse effects to water quality.
- Utilize erosion logs, silt fence, or other sediment control devices as sediment barriers and filters adjacent to wetlands, surface waterways, and at inlets where appropriate.
- Locate construction staging areas at a distance of greater than 50 feet from adjacent stream/riparian areas to avoid disturbance to existing vegetation, avoid point source discharges, and to prevent spills from entering the aquatic ecosystem (including concrete washout).
- Reclaim temporary impacts to waters of the U.S. and adjacent habitat with native plants and shrubs.



With proper use and management of BMPs for stormwater and construction disturbances, minimal sediment should reach wetland areas. The toes of new construction will be stabilized with silt fence or erosion logs.

If a build alternative is identified as the Preferred Alternative, a Wetland Finding will be prepared, and the Final EIS will document FHWA's compliance with EO 11990 (see above). This will include a determination on whether a practicable alternative exists to the proposed new construction in wetlands. This project is anticipated to qualify for a Section 404 Nationwide permit or permits. After avoidance and minimization measures are conducted during final design, the Study team will further define Section 404 permit requirements.

3.26.11 Floodplains

During final design, RTC and/or NDOT will minimize impacts to the floodplain by doing the following:

- Minimizing fill in the floodplain.
- Using retaining walls and other design features where practical.
- Avoiding, to the maximum extent practicable, longitudinal encroachment of the floodplain.
- Floodway reconfiguration, if possible, in instances where the flood elevation would be increased.

By performing the actions above, RTC and/or NDOT will seek to avoid any net increase to the 100-year flood water surface elevation. In instances where the flood elevations will increase, a LOMR will be completed and mitigation measures included in the design to protect affected properties.

Consistent with 23 CFR 650 Subpart A and FHWA regulation, RTC, working with FHWA and NDOT, will continue to coordinate with Washoe County, the Cities of Sparks and Reno, FEMA, and the USACE as necessary to identify and include appropriate mitigation measures in the final design of the project. Because of the anticipated placement of earthen fill, construction of retaining walls, and placement of culverts within floodplains, a Conditional Letter of Map Revision and Letter of Map Revision will be required from FEMA prior to construction of any of the build alternatives.

Through adherence to these mitigation measures the Lead Agencies will ensure compliance with EO 11988, 23 CFR 650 Subpart A, FHWA and FEMA.

3.26.12 Vegetation and Noxious Weeds

To mitigate impacts to vegetation from the build alternatives, RTC and/or NDOT will:

- Minimize the amount of disturbance and limit the amount of time that disturbed areas are allowed to remain non-vegetated.
- Employ NDOT BMPs and revegetation guidelines to minimize habitat impacts associated with vegetation removal.
- Implement an Integrated Weed Management Plan for the project.
- Avoid disturbance to existing trees, shrubs and vegetation, to the maximum extent possible.
- Revegetate all disturbed areas with native grass and forb species. Seed, mulch and mulch tackifier will be applied in phases throughout construction.
- Use erosion control blankets, where feasible, on steep, newly seeded slopes to control erosion and to promote the establishment of vegetation. Slopes should be roughened at all times and concrete washout contained.
- Limit work areas as much as possible to minimize construction impacts to vegetation.
- Include non-structural BMPs when possible, such as litter and debris control, and landscaping and vegetative practices.

3.26.13 Wildlife

RTC and/or NDOT will follow appropriate BMPs to prevent and minimize temporary impacts to vegetation and wildlife during construction. These BMPs could include:

- Employ NDOT BMPs and revegetation guidelines to minimize habitat impacts associated with vegetation removal.
- Implement an Integrated Weed Management Plan for the project.
- Avoid disturbance to existing trees, shrubs and vegetation, to the maximum extent possible.
- To avoid impacts to nesting birds in accordance with the MBTA, if construction is to commence between April 1 and August 31, a qualified biologist will conduct a nest survey prior to construction. If active nests are found, coordination with NDOW and USFWS is required to determine an appropriate course of action, which may include, but is not limited to, a delay in construction to avoid the breeding season.
- Protect wetland areas not temporarily impacted by the project from construction activities by temporary and/or construction limit fencing.



- Evaluate opportunities to incorporate specific measures to enhance wildlife connectivity as needed during final design.
- Revegetate all disturbed areas with native grass and forb species. Seed, mulch, and mulch tackifier will be applied in phases throughout construction.
- Develop a stormwater management plan with BMPs to minimize adverse effects to water quality.
- Use erosion logs, silt fence, or other sediment control devices as sediment barriers and filters adjacent to wetlands, surface waterways, and at inlets where appropriate.
- Use erosion control blankets, where feasible, on steep, newly seeded slopes to control erosion and to promote the establishment of vegetation. Slopes should be roughened at all times and concrete washout contained.
- Limit work areas as much as possible to minimize construction impacts to vegetation.

3.26.14 Special-Status Species

RTC and/or NDOT will follow appropriate BMPs to prevent and minimize effects to special-status species during construction. Specifically, RTC and/or NDOT will:

- Employ NDOT BMPs and revegetation guidelines to minimize habitat impacts associated with vegetation removal.
- Implement an Integrated Weed Management Plan for the project.
- Conduct an additional botanical survey during the appropriate bloom time (May through end of July) for sensitive plant species prior to the initiation of the Final EIS. Avoid disturbance to existing trees, shrubs and vegetation, to the maximum extent possible.
- To avoid impacts to nesting birds in accordance with the MBTA, if construction is to commence between April 1 and August 31, a qualified biologist will conduct a nest survey prior to construction. If active nests are found, coordination with NDOW and USFWS is required to determine an appropriate course of action, which may include, but is not limited to, a delay in construction to avoid the breeding season.
- Protect wetland areas not temporarily impacted by the project from construction activities by temporary and/or construction limit fencing.
- Revegetate all disturbed areas with native grass and forb species. Seed, mulch, and mulch tackifier will be applied in phases throughout construction.
- Use erosion bales, erosion logs, silt fence, or other sediment control devices as sediment barriers and filters adjacent to wetlands, surface waterways, and at inlets where appropriate.

- Use erosion control blankets, where feasible, on steep, newly seeded slopes to control erosion and to promote the establishment of vegetation. Slopes should be roughened at all times and concrete washout contained.
- Limit work areas as much as possible to minimize construction impacts to vegetation.

3.26.15 Visual Quality

To minimize adverse visual impacts that may result from the project:

- RTC and/or NDOT will install screening walls in EJ areas to screen views of the proposed improvements, if supported by the affected neighborhoods.
- RTC and/or NDOT will design traffic noise barriers, screening walls, and retaining walls such that they blend into the surrounding environment. This will be accomplished by selecting proper color and material type and texture through coordination with local agencies and stakeholders, and by considering the aesthetic recommendations presented in the *Pyramid Highway Corridor Management Plan* (RTC, 2002).
- RTC and/or NDOT will coordinate with parks staff at the City of Sparks and Washoe County on design of the water quantity/quality basin proposed at Wedekind Park to make consistent with the park's planned uses.
- RTC and/or NDOT will minimize cut/fill areas where feasible and design them to blend in with the surrounding environment to minimize visual impacts.
- RTC and/or NDOT will minimize the amount of construction disturbance; limit the amount of time that disturbed areas are allowed to remain non-vegetated; avoid disturbance to existing trees, shrubs and vegetation to the maximum extent possible; and revegetate all disturbed areas with native grass and forb species.
- Construction activities are anticipated to occur primarily during the daytime. If nighttime construction is required, procedures will be taken to direct the light inward toward the construction site to minimize glare for residents and motorists in the immediate vicinity.

BLM Parcel

RTC and/or NDOT will implement the following measures to reduce visual impacts to the BLM parcels in the Study Area:



Land form mitigation

- Prohibit dumping of excess material on downhill slopes.
- Design alignment to follow existing grades to the extent practicable.
- Shape cuts and fills to appear as natural forms.
- Cut rock areas so forms are irregular.
- Seed areas of cuts and fills with native grasses.
- Place alignments to blend with topographic forms in shape and placement.

Vegetation mitigation

- Retain existing vegetation by:
 - ◆ Using retaining walls on fill slopes where reasonable and feasible.
 - ◆ Reducing surface disturbance.
- Enhance revegetation by:
 - ◆ Choosing native plant species.
 - ◆ Stockpiling and reuse topsoil.
 - ◆ Fertilizing, mulching, and water replacement vegetation.
- Minimize impact on existing vegetation by:
 - ◆ Making partial cuts instead of clear cuts.
 - ◆ Using irregular clearing shapes.
 - ◆ Feathering/thin edges.
 - ◆ Controlling construction access.
 - ◆ Using existing roads.
 - ◆ Limiting work within construction area.
 - ◆ Minimizing clearing size (i.e., strip only where necessary).
 - ◆ Seeding cleared areas with grass.

Structures mitigation

- Minimize structure contrast by considering:
 - ◆ Using earth-tone paints and stains.
 - ◆ Using natural stone surfaces.
 - ◆ Selecting paint finishes with low reflectivity.
 - ◆ Using native building materials.
 - ◆ Using natural appearing forms to complement landscape.
 - ◆ Taking advantage of natural screening.

3.26.16 Historic Preservation

Historic Architecture

The proposed action would result in an Adverse Effect to the Prosser Valley Ditch. As such, RTC and/or NDOT will complete an extensive 35mm photo study of the ditch segments impacted prior to any disturbance. RTC and/or NDOT will complete a report

following the Nevada State Historic Preservation Office Documentation Standards for Historical Resources of Local and State Significance, September 2009 edition. The report will document the history of the entire ditch and place the impacted segments within the context of the overall irrigation system. RTC and/or NDOT will consider signage or other media for public education about the ditch and the significance of irrigation in Nevada at some location near the ditch.

To mitigate temporary impacts during construction, RTC and/or NDOT will undertake the following measures:

- Minimize area of disturbance to the extent practicable.
- Control construction access.
- Limit work within construction area.
- Revegetate disturbed areas as soon as practicable, consistent with adjacent landscape features and with desirable native plant species.

Archaeological Resources

The Lead Agencies will assess measures to mitigate impacts to archaeological resources if a build alternative is selected as the Preferred Alternative, and they will document the findings in the Final EIS.

Programmatic Agreement

For effects to historic or culturally significant resources determined following completion of the EIS process, FHWA, NDOT, RTC, and RSIC will coordinate and develop mitigation measures as stipulated in the Programmatic Agreement currently being drafted, as described in Section 3.17.1.2. The current draft of the PA is contained in Appendix A *Agency Coordination*. The final, signed PA will be provided in the Final EIS.

3.26.17 Hazardous Materials

Contaminated soil and hazardous wastes will be analyzed and properly disposed of at an approved facility. In addition, if the contaminated soil and hazardous waste are found to exceed regulatory amounts, the material will be managed and disposed of in accordance with applicable local, state, and federal hazardous waste regulations.

Owners of subsurface utilities will be contacted in areas where excavation is to be conducted to assess whether any of the utilities are contained in Transite™ asbestos pipe. If subsurface utilities are determined to be housed in Transite™ asbestos pipe, and the utilities will be relocated for the project, special handling, and possibly asbestos abatement will be required. In addition, abandoned utilities may also be found in areas where excavation is to be conducted. Special handling and possible asbestos abatement will be required.



Prior to commencement of activities that may disturb suspect material, inspections for ACM and LBP will be conducted by appropriately trained and licensed personnel.

If a build alternative is identified as the Preferred Alternative, RTC and/or NDOT will conduct further evaluations later in the project development process. Potential impacts will be further evaluated based on the nature of the potential impact (releases, USTs versus manufacturing or wastewater facilities) relative to the proposed improvements. Additional evaluations should initially include facility-specific Phase I ESAs pursuant to the ASTM Designation 1527 standard in effect for all properties within the build alternative footprint, with follow-on Phase II investigations conducted, if justified by the Phase I ESA findings. Mitigation measures, if determined to be necessary, will be based on the results of the Phase I and Phase II investigations.

3.26.18 Park and Recreation Resources

The Study team will look for opportunities to further minimize impacts during the final design process.

RTC and/or NDOT will undertake the measures listed below to mitigate impacts to parks and recreation resources.

- Maintain access to Lazy 5 Park during construction.
- Minimize cut/fill areas of the US 395 Connector to blend in with the surrounding environment to minimize visual impacts to Wedekind Park users.
- Preserve and slightly improve the existing access to the trailhead parking at the northern portion of Wedekind Park, which is currently accessed via a driveway on the south side of Disc Drive just east of Pyramid.
- Design fill slopes at the Disc Drive/Pyramid Highway intersection to mimic the natural landscape and revegetate all disturbed areas. Revegetation will include reseeding with native grasses and use of native shrubs as appropriate. Similarly, design of the proposed permanent water quantity/quality basin will also mimic natural landscape to the extent possible and will also be revegetated. During construction best management practices will be employed for erosion control. Property acquisition will be completed under the Uniform Relocation Act.
- RTC and/or NDOT will continue to coordinate with the City of Sparks Parks and Recreation Department on the design of the water quantity/quality basin proposed in the southwest portion of the park so that it is consistent with the park's planned uses and amenities.
- Alternative 2 or Alternative 3 would require total acquisition of the Sun Valley Open Space parcel. If one of these alternatives becomes the Preferred Alternative, RTC

and/or NDOT will coordinate with Washoe County to meet the commitments set forth in Washoe County's August 2011 Resolution of Support regarding the Sun Valley Open Space parcel, described in Section 3.19.2 *Existing Conditions, Existing Parks and Recreation Facilities* and Appendix A *Agency Coordination*).

3.26.19 Farmland

The NRCS agreed with the conclusion that no prime or unique farmland would be impacted by the project. Therefore, no further coordination with the local NRCS office is necessary, and avoidance and/or mitigation measures are not required.

3.26.20 Energy

No energy mitigation measures would be needed for traffic operations. However, energy conservation measures could be considered during construction to minimize overall project energy needs. For example, an energy plan could be implemented that would encourage contractors to adopt several construction energy conservation measures including, but not limited to:

- Using energy-efficient equipment.
- Incorporating energy-saving techniques during construction.
- Avoiding unnecessary idling of construction equipment.
- Consolidating material delivery whenever possible to promote efficient vehicle utilization.
- Scheduling delivery of materials during non-rush hours to minimize fuel lost to traffic congestion, thereby maximizing overall vehicle fuel efficiency.
- Encouraging project employees and contractors to carpool.
- Maintaining equipment and machinery in good working condition, especially those using fossil fuels.

3.26.21 Relationship Between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

No mitigation required.

3.26.22 Irreversible and Irretrievable Commitment of Resources

No mitigation required.

3.26.23 Cumulative Effects

To avoid additional impacts to the identified resources of concern, local authorities and planning entities must continue to review and scrutinize development proposals to



1 ensure that new development is consistent with local area planning goals. Local
2 planning jurisdictions can reduce environmental impacts through the implementation
3 of:

- 4
- 5 • Smart growth goals and policies identified in the Washoe County Master Plan Land
6 Use and Transportation Element.
- 7 • Programs identified in the Washoe County PM₁₀ and CO SIPs to reduce air emissions
8 from mobile sources as control strategies and contingency measures for non-
9 attainment and maintenance areas. These programs include the Federal Motor
10 Vehicle Control Program, Nevada's Motor Vehicle Inspection and Maintenance
11 Program, Washoe County Oxygenated Fuel Program, Street Sanding and Sweeping
12 Program, and Dust Control (Washoe County District Board of Health, 2005 and
13 2009).
- 14 • EPA GHG standards that require new passenger, light-duty trucks, and medium-
15 duty passenger vehicles to meet an estimated combined average emissions level of
16 250 grams of carbon dioxide (CO₂) per mile in model year 2016, equivalent to 35.5
17 miles per gallon (mpg), if the automotive industry were to meet this CO₂ level all
18 through fuel economy improvements.
- 19 • Water resource policies identified in the WRWC 2011-2030 Comprehensive Regional
20 Water Management Plan.
- 21 • Education, monitoring, BMPs, and reporting programs identified in the 2011 *Truckee*
22 *Meadows Regional Storm Water Quality Management Program*.
- 23

24 These initiatives can provide economic, social, and environmental benefits to the
25 Regional Study Area. The next step is for local jurisdictions to strictly enforce these
26 principles through their development review process. Local authorities and planning
27 entities should also require appropriate avoidance or mitigation as part of any new
28 development project. Resources most at risk that could be protected are water resources,
29 air quality, and EJ populations. For transportation projects, RTC and/or NDOT will
30 ensure that all best management practices and mitigation measures specified in this
31 Final EIS are followed appropriately.
32

